
NATIVE AMERICAN SACRED PLACES

HEARING

BEFORE THE

**COMMITTEE ON INDIAN AFFAIRS
UNITED STATES SENATE**

ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

ON

**THE PROTECTION OF NATIVE AMERICAN SACRED PLACES AS THEY
ARE AFFECTED BY DEPARTMENT OF DEFENSE UNDERTAKINGS**

**JUNE 4, 2002
WASHINGTON, DC**

PART 1



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NATIVE AMERICAN SACRED PLACES

TUESDAY, JUNE 4, 2002

U.S. SENATE,
COMMITTEE ON INDIAN AFFAIRS,
Washington, DC.

The committee met, pursuant to notice, at 10:02 a.m. in room SR 485, Russell Senate Building, Hon. Daniel K. Inouye (chairman of the committee) presiding.

Present: Senators Inouye, Campbell, and Akaka.

STATEMENT OF HON. DANIEL K. INOUE, U.S. SENATOR FROM HAWAII, CHAIRMAN, COMMITTEE ON INDIAN AFFAIRS

The CHAIRMAN. The committee meets this morning for the first in a series of hearings that will be held on the protection of Native American sacred places as they are affected by the undertakings and activities of various Federal agencies. This morning we will receive testimony on how the activities of the military services of the Department of Defense [DOD] are affecting Native American sacred places.

There are several Federal laws which address some aspect of Native American sacred places, but, even taken together, as we will hear today, they fail to provide adequate protection for places that are sacred to Native people. These laws include The American Indian Religious Freedom Act, the National Historic Preservation Act, and the Native American Graves Protection and Repatriation Act. In addition, in the previous Administration President Clinton issued an Executive Order addressing Native American sacred sites.

We begin this series of hearings with the Department of Defense agencies, in part because the Department has implemented a number of initiatives which are commendable in their own right but which, unfortunately, have not been replicated by other Federal agencies. The Department of Defense has adopted a guidance and issued a publication in pursuit of the government-to-government consultation policy objectives established during President Clinton's administration.

In addition, the Department has developed a curriculum to provide the commanders of military installations across the country, as well as those who serve under them, with a thorough background on the history of Federal Indian relations and Federal Indian law and policy.

The Department has also contracted to develop a mapping of those geographic areas of the country that are the subject of treat-

ties between Indian nations and the United States so that the Department and its services may know with whom they should consult when a proposed undertaking might affect tribal lands.

The Department is certainly to be commended for its leadership in these areas; yet, as we will hear today, there are issues and areas that have not been addressed very well. Often, we have found that the best way to assure that negative patterns are not repeated is to identify the problem area so that we may better focus our attention on improvement.

I wish to thank all of the witnesses who will appear before the committee today and to extend the committee's appreciation to the Sacred Lands Protection Coalition, the National Congress of American Indians, and the Morningstar Institute and the Institute's director, Suzan Shown Harjo for all that they have contributed to today's hearing.

Before proceeding, may I call upon the vice chairman of the committee?

STATEMENT OF HON. BEN NIGHTHORSE CAMPBELL, U.S. SENATOR FROM COLORADO, VICE CHAIRMAN, COMMITTEE ON INDIAN AFFAIRS

Senator CAMPBELL. Thank you, Mr. Chairman.

First, I think we are both aware that protecting cultural, religious, and ceremonial resources is not only a concern for Native Americans, but is or certainly should be a concern for all Americans. In fact, the week before our Memorial Day recess, the House Resources Committee favorably reported a bill to transfer ownership of 900 acres known as Martin's Coves to the Church of Mormon. This was land, Mr. Chairman, in which 150 people perished in a blizzard, and the land has enormous historical and religious value to the members of the Mormon Church.

I would also say that protecting sacred places, that deeply held conviction is not limited to Americans, alone. People around the world are clamoring to preserve and protect religious and cultural sites in Turkey, Italy, Greece, the Holy Land, South America, Afghanistan, and many other places. There is something uniquely human about protecting the sacred and keeping the sacred and the mundane separate and apart, and that's what this is all about.

In addition to the sites we will hear about today, there are places Native peoples hold very dear, such as the Huckleberry Patch in Oregon, Mt. Graham in Arizona, Sand Creek site in Colorado, and hundreds of other places that are being threatened as we speak. Just as Native people continue to protect their ceremonial lands, it is evident to me that the legal protections now in place for cultural and religious sites in America are lacking in many respects.

Let me add, from the Antiquities Act of 1906 to the American Indian Religious Freedom Act of 1978 to the American Native Graves Protection and Repatriation Act of 1990, each of these key laws have proven very valuable and yet unable to fully protect the Native sites.

I am very well aware of your efforts in this regard, Mr. Chairman. I look forward to our hearing. With that I'll put the rest of my opening statement in the record.

The CHAIRMAN. Without objection, so ordered.

Our first panel consists of the deputy assistant secretary of policy and legislation from the Office of the Assistant Secretary of the Army. He will be accompanied by Charles R. Smith, assistant for environment, tribal and regulatory affairs, Office of the Assistant Secretary of the Army; and Philip W. Grone, Principal Assistant Deputy Under Secretary of Defense for Installations and Environment.

Gentlemen, I welcome you. Secretary Dunlop.

Mr. DUNLOP. Thank you very much, Mr. Chairman. I might say that those of us at the Department of Defense are quite conscious about rank and things, and I think that Mr. Grone representing the Secretary of Defense would be a little bit higher in rank than the Secretary of the Army, so I wonder if I might defer to ask Mr. Grone to proceed first.

The CHAIRMAN. Mr. Secretary.

STATEMENT OF PHILIP W. GRONE, PRINCIPAL ASSISTANT DEPUTY UNDER SECRETARY OF DEFENSE [INSTALLATIONS AND ENVIRONMENT], WASHINGTON, DC

Mr. GRONE. Thank you, Mr. Dunlop. Thank you, Mr. Chairman.

Chairman Inouye, Senator Campbell, and members of the Committee on Indian Affairs, I am honored to appear before you this morning on behalf of the Department of Defense to address the policies and procedures of the Department and its components with regard to the protection of sacred lands and sites that are vitally important to Native Americans.

Mr. Chairman, with the permission of the committee I have prepared a written statement that was submitted earlier. I will briefly summarize that statement, and I request, with the permission of the committee, to have my written statement included as a part of the record.

The CHAIRMAN. So ordered.

Mr. GRONE. Thank you, Mr. Chairman.

The Department of Defense and its components have a long-standing relationship with Native Americans. We recognize and honor the deep commitment of Native Americans to the defense of the United States. That commitment, reflected by those who currently serve in uniform, as well as the nearly 190,000 Native American military veterans who came before them, has yielded substantial contributions to the Nation's security, including the Indian code talkers, most notably the Navajo, who exercised a decisive role during the Second World War, along with other code talkers, including the Choctaw, Comanche, Oneida, Chippewa, Sac, Fox, and Hopi.

In his proclamation on Native American Heritage Month in November of last year, the President stated that:

The strength of our Nation comes from its people. As the early inhabitants of this great land, the Native peoples of North America played a unique role in the shaping of our Nation's history and culture. We will work with the American Indians and Alaska Natives to preserve their freedoms as they practice their religion and culture.

We believe that the Department is working every day within the spirit of the President's remarks. The primary mission of the Department of Defense is to prepare the armed forces to defend the Nation, to deter aggression, and, when necessary, to fight and to

win the Nation's wars. Within that primary mission, DOD respects the importance tribes place on the protection of sacred sites on lands entrusted to us and under the administrative control of the military departments.

Currently there are 45 military installations and ranges that contain known sacred sites within their boundaries. Consultation continues with a number of tribes concerning suspected sites on 15 additional installations. At these installations, installation commanders and the tribes work together almost daily to ensure that mission-related training can occur consistent with the protection of sacred sites.

Moreover, as I indicated in my prepared statement, the military components administer 25 million acres of land, including 16 million acres of withdrawn public lands. There are 157 military installations located within 50 miles of at least one Federally-recognized tribe, and 208 federally-recognized tribes live within 50 miles of a given military installation.

To address the relationship appropriately, the Department of Defense and its components are working cooperatively with tribes on many levels to address a number of important issues, including the protection of sacred sites. In 1998, after 20 months of extensive consultation with tribal organizations and tribal governments, the Department promulgated its American Indian and Alaska Native policy. Through this policy, building upon existing law and treaty, regulation, executive order, and Department of Defense directive, we sought to provide a comprehensive framework within which the components could approach issues of concern to the tribes. The implementation of this policy has resulted in significant improvements in the way we interact with tribal governments. The policy includes four guiding principles: trust responsibility, government-to-government relations, consultation, and natural and cultural resources protection.

Many of our installation commanders have formed partnerships and undertaken formal agreements with tribes as part of an overall plan to protect the cultural resources located on the installation. These partnerships and agreements cover issues including, but not limited to, the access to and protection of sacred sites.

With the policy as a backdrop, DOD has undertaken several initiatives that are key to the protection of sacred sites at our installations. One of these involves the development of integrated cultural resource management plans, or ICRMPs. ICRMPs are an important tool utilized by installation commanders in the management of cultural resources. Typical ICRMP requirements include surveys; consultation with affected parties, including Native Americans; and activities to mitigate the effects on cultural resources. Although not required by law, ICRMPs are required by DOD policy for all installations. At the conclusion of fiscal year 2001, 212, or 53 percent of the 398 ICRMPs identified for planning purposes, were completed. We continue to track the completion of ICRMPs as a performance measurement within the Office of the Deputy Under Secretary of Defense for Installations and Environment.

Another important step DOD has recently taken is a Defense-wide training effort on the implementation of our policy. Our office has sponsored a series of DOD-wide training courses since June

1999, with our most recent course taking place just last month at Ellsworth Air Force Base, South Dakota.

Through this program we have trained nearly 500 DOD and component staff, as well as 150 commanders and senior leaders on American Indian law, history, consultation, cultural communications, and cultural resource issues, including the protection of sacred sites. The courses are designed to be comprehensive and incorporate participation by tribal elders, local tribal historians, and cultural resource specialists.

The military departments, for their part, have also embarked upon training courses. For example, the Civil Engineer Corps of the Navy has conducted training in this area for the last four years. The Army National Guard is also significantly involved in training and outreach activities and will conduct two consultation workshops later this year in Springfield, Missouri, and in Providence, Rhode Island.

In recognition of the importance of ICRMPs and as a part of the continuing emphasis on training, my office last month issued to the components a publication entitled, "Commander's Guide to Stewardship of Cultural Resources." Developed in cooperation with the National Trust for Historic Preservation, the guide provides installation commanders with fundamental information concerning the development and implementation of all facets of an integrated cultural resource management plan.

In summary, through the implementation of current law and treaty, regulation, executive order, and DOD directive and policy, we believe the Department of Defense and the components are effective in providing access to and protection of sacred sites.

Recognizing that we can continue to deepen our understanding of the nature of sacred lands and to improve our programs, we will continue to work cooperatively with the Congress, tribal governments and organizations, and other interested parties in addressing this issue.

As I conclude my remarks, Mr. Chairman, I want to acknowledge the contribution of those key members of the OSD staff who work in this policy area. Len Richeson and Stacey Halfmoon serve in the Office of Environmental Quality on the Deputy Under Secretary of Defense (Installations and Environment) staff, and Jim Van Ness serves in the Office of the Deputy General Counsel for Environment and Installations. Each of these individuals have made significant contributions to our policies and procedures. While we believe we have a solid record of accomplishment, we continue to look for ways to improve our efforts. In that regard, Mr. Chairman, we look forward to a continuing dialogue with this committee on matters of mutual concern.

Thank you for your time this morning. I am prepared to address any questions the committee may have.

The CHAIRMAN. Thank you, Mr. Secretary. We will be calling upon you in a few minutes.

[Prepared statement of Mr. Grone appears in appendix.]

The CHAIRMAN. Secretary Dunlop.

STATEMENT OF GEORGE S. DUNLOP, DEPUTY ASSISTANT SECRETARY [POLICY AND LEGISLATION], OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY, WASHINGTON, DC, ACCOMPANIED BY CHARLES R. SMITH, ASSISTANT FOR ENVIRONMENT, TRIBAL AND REGULATORY AFFAIRS

Mr. DUNLOP. Thank you very much, Mr. Chairman.

Indeed, I am the deputy assistant secretary of the Army for policy and legislation in the Office of the Assistant Secretary of the Army for Civil Works, so the thrust of my testimony today will focus on that aspect of the Army that deals with civil works matters. I'm accompanied by Chip Smith, who is also in our office, and he is our assistant for environment, tribal, and regulatory affairs.

In addition to these brief summary remarks, I wonder if I also might be permitted to submit for the record our formal statement?

The CHAIRMAN. Absolutely.

Mr. DUNLOP. Thank you, sir.

Also, in addition to that, I believe that we provided to the committee some documents I'm going to reference in just a moment that we hope will kind of outline some of the things that we found to be successful. It might serve as a road map, perhaps, as you suggested, to other agencies and people who would be interested in coming up with the kinds of procedures and practices that would follow Congressional intent, as you have described it.

Also, I would like to reiterate what Secretary Grone said in regards to President Bush's formal proclamation, which did acknowledge the sovereignty of tribal governments and affirmed our responsibility in the Executive Branch to work with tribes and with Indian people to address concerns they have about sacred sites and lands, particularly as we interpret that as would be impacted by Army civil works activities.

As you all might know from other work that you do here in the Senate, the Army civil works program is virtually all over the Nation. We have 38 different Districts divided in eight divisions with some 35,000 people engaged in our business.

There's three ways that the Army's civil works programs might have an impact on sacred sites and lands. First of all, it comes from the operation and maintenance of the projects in which we have engaged. The Army has more than 1,000 projects that have been built over the past 100-some years. This includes more than 600 dams and their attendant lakes and river systems, comprising in Army ownership now some 12 million acres of land and water resources. About 25 percent of these Army-controlled lands could potentially affect the treaty and trust resources of about 90 tribes, and just in the lower 48 States, and, of course, many, many people up in Alaska. We have identified what we believe is in excess of 60,000 known archeological and sacred sites, so we have quite a big task.

The second way that we can impact is through the implementation of additional water resources projects that are underway. We do that in concert with non-Federal sponsors, which means oftentimes we obtain lands and other operating activities with local people, including tribes, that end up operating these projects.

And then the third way is through our Corps of Engineers regulatory program. Most famous is the section 404 permitting, but we also have other regulatory authorities, as well.

The current Army civil works Indian affairs activities really began in the current cycle in about 1994, when the Army established its Native American Inter-Governmental Task Force. The Corps of Engineers since then has now engaged into about 19 different workshops we had carried out between about 1994 and 1995 or 1996 involving more than 550 tribal representatives from 186 federally-recognized tribes. One of the outputs of that was one of the documents I referenced earlier, this two-volume document entitled, "The Assessment of Corps and Tribal Inter-Governmental Relations."

In 1998 the chief of engineers issued policy guidance letter number 57 that began to incorporate the things that we learned into the actual operations of the day-to-day activities of these Corps offices and Districts that I described earlier, including a set of what we call "Army Civil Works Tribal Principles," and those are detailed in my formal testimony, but the bottom line is that we affirm that the tribes retain their inherent rights to self-government and that we have an obligation to consult prior to any final decision-making with people who are possessed of these rights and privileges.

Then, in 1998, the chief issued policy guidance letter number 58, which specifically intended to address the executive order that the chairman mentioned.

My testimony details additional further steps that we have taken that the bottomline of which is to make sure that representatives of all of the functional groups of the Corps of Engineers are involved in carrying out our responsibilities under these various laws and acts. We have more than 70 Corps employees designated as Native American specialists, and they operate and liaison with the Corps of Engineers at their headquarters here in Washington.

In January 2002 the Corps' Institute of Water Resources published this document, "The Tribal Partnership program," that identified issues relevant to working with Native Americans and Alaska Natives, and this has been provided to the committee.

I think, in conclusion, Mr. Chairman, the point is we could go through a lengthy list of threads from the fabric of specific things that we have taken to make sure that there is adequate consultation and involvement, and I can say that my inquiries to all of the people that report to us in the Department of the Army—are there any fundamental policy issues? Is there anything where there's disagreement where, you know, we just feel we can't carry out some of the things we've been told to do because we haven't reached agreement on policy? And the answer I get is none. To the degree that what we might be doing in the Army is not satisfactory is a degree to which we have got to learn to perform in particular matters in site- and situation-specific circumstances and inform ourselves better about how to carryout the intentions of Congress. I don't sense or know about—perhaps you could correct me—any fundamental policy differences about these matters.

We have focused on six elements of effort that we think can guide our activity and the activity of other agencies or bureaus of the Government, perhaps, if they were so inclined.

No. 1, to have effective protection of sacred lands and sites. We believe these can be facilitated by, number one, leadership that seeks to achieve a consistency in Federal policies and practices and the Federal approach toward the tribal nations and these concerns that they have.

No. 2, that we can develop effective government-to-government relationships—that is, not only the Federal agencies, but to the subordinate agencies of government in our Constitutional framework.

And the third element is there has to be real consultation and real partnerships prior to our reaching final decisions about matters of particular interest.

And then we believe in leveraging resources to the greatest extent we can, and also that we have a planning process that people can participate in in a formal and consultative way as we develop our policies, programs, and activities. And then, of course, finally, the ultimate issue I guess is a policy issue, and that's the allocation of resources of people and money.

Mr. Chairman, that concludes my informal remarks. Of course, myself and Mr. Smith are available to respond to any questions you all might have. Thank you so much for this opportunity.

The CHAIRMAN. I thank you very much, Mr. Dunlop.

[Prepared statement of Mr. Dunlop appendix.]

The CHAIRMAN. Now, if I may begin asking questions, one of the words used most often when we describe Federal Indian policy is the word "consultation." All too often, consultation has been looked upon by our Government agencies as notification after the fact accompli. I'd like to ask Mr. Grone how are tribal consultation policies implemented? Is that the way we do it?

Mr. GRONE. Mr. Chairman, that is not the policy of the Department of Defense and that is not how we do it. With regard to consultation, a consultation is, in many ways, the most important piece of the four pillars of our overall policy. Within the framework of consultation and the emphasis we place within our training is to recognize that consultation is an ongoing process and must retain a high level of flexibility to meet the unique circumstances which any installation commander may come upon in working in a collaborative relationship with a tribe or tribes.

So what we try to do with regard to the consultation process is set up a number of different types of procedures which may be used in that process. Consultation can be formalized through different types of agreements. We use programmatic agreements, we use cooperative agreements, we use memorandums of understanding or memorandums of agreement, but we do try to proactively work with tribes in areas of mutual concern and try to emphasize to our installation commanders that this is an ongoing part of their installation management practice to ensure that they are in regular consultation with the tribes.

When we discover, or when an installation commander discovers, an area that may be of potential concern to a tribe under our policy

and under existing law, activities will cease and we will undertake the appropriate level of consultation.

The CHAIRMAN. How do you assess and monitor compliance with Executive Order 13007?

Mr. DUNLOP. We monitor at a very general level within OSD compliance with the Executive order. The military departments execute the executive order. We are working on an ongoing basis to currently deepen our consultative mechanisms within the Department of Defense. We are currently in the process of development which is not yet finalized. We are currently in the development of an integrated product team that will involve all of the components, including the Corps of Engineers, in a process whereby we can regularly and routinely consult with each other and monitor progress on the implementation of our policy. That policy document—that IPT charter is currently in development and, once finalized, we will be happy to provide it to the committee for your information.

The CHAIRMAN. Secretary Grone, if I may, I'd like to touch upon specific issues. Based on the input we have received in preparation of this hearing, there appears to be a systematic failure in the Corps' compliance with the National Historic Preservation Act and the Native American Graves Protection Act in relation to its Missouri River mainstream dam operations. Tribal leaders and historic preservation professionals have informed us of a widespread lack of understanding and implementation of government-to-government consultation for tribes in regard to cultural resource management.

So my question is: Will you please assess the Missouri River cultural resource program and its compliance with historic preservation laws? Are you satisfied?

Mr. GRONE. Mr. Chairman, as I indicated in my prepared statement, we believe across all of the components we can do better in terms of our consultation processes, and we are striving to do so. With regard to the specific issue you raise, I will ask Mr. Dunlop to speak to specific questions of execution, but I want to lay out a further framework.

When we developed our initial policy in 1998, the Corps of Engineers was a participating agency in the development of that policy. They were a member of the policy development team, and the Corps, as Mr. Dunlop indicated, has undertaken several initiatives that are consistent with that policy, although I understand that there is some criticism of the Corps' execution of the policy.

With regard to specific issues in regard to Missouri River, I have the honor and privilege of sitting for the Secretary of Defense in his capacity as a voting member of the Advisory Council on Historic Preservation. Next week the Council will undertake an informational hearing in Pierre, SD, specifically on the question of Missouri River. I will attend that hearing to hear first-hand from both the Corps, in terms of the implementation of its activities, as well as concerned tribal organizations, tribal governments, as well as elders, their views and perspectives on the Missouri River issue. I view that hearing as important not just to the activities of the Advisory Council, but important for the Department of Defense and the Corps of Engineers to better understand and adjust policy

where necessary and practice where necessary to accommodate the concerns of affected parties.

The CHAIRMAN. Are you satisfied that the Missouri River personnel have been provided with adequate Indian law and policy training?

Mr. GRONE. Mr. Chairman, to be quite frank, I've not looked at it at that level. I will do so and provide a response to you and to Senator Campbell. We are training, through our own training programs, Corps personnel. The Corps of Engineers is also engaged in a series of training activities for their personnel. I have not yet been in a position to judge or assess the adequacy of those various training programs that the Corps, itself, has undertaken, but they are extensive. Many of the issues involved here may well be in terms of not just the training but the execution, as Mr. Dunlop indicated, but I would have to yield to him to explain in more detail how the Corps intends to execute in this area.

[Information follows:]

ADEQUATE INDIAN LAW AND POLICY TRAINING

The Omaha District Corps of Engineers cultural resources personnel have an extensive list of training requirements to complete before working in this important area. This training is outlined in the Omaha District Cultural Resources Program Management Plan [CR PgMP]. The training focuses on skills needed to complete Civil Works Planning, Programming and Policy functions. For cultural resources, the plan specifies both formal and informal training requirements. The formal training includes National Historic Preservation Act [NHPA] Section 106, Native American Graves Protection and Repatriation Act [NAGPRA], and Archaeological Resources Protection Act [ARPA] courses as well as training on more than 20 applicable laws and regulations. On an informal level, it includes working directly with the tribes on a regular basis to help apply and understand another cultures' perspective on these laws. This continues to be a valuable and necessary component to the training program.

The U.S. Army Corps of Engineers takes advantage of training that will give us a Native American perspective on the same laws mentioned above. Recently the Corps sent two people from their office to a training class sponsored, in part, by the Three Affiliated Tribes of North Dakota. At this training, a University of Montana professor spent 3 days teaching NHPA, NAGPRA, ARPA, National Environmental Policy Act [NEPA] and other laws from a tribal perspective. This type of training is helpful as the Department continue to try to understand how others may interpret the laws and regulations that apply to cultural resource sites on Federal lands.

The CHAIRMAN. Do you believe that the Department should more systematically and programmatically involve Native Americans in your planning on cultural and natural resource management?

Mr. GRONE. We do as a matter of our practice through the ICRMP process. That consultation is quite extensive. We believe that we have built up and the military components have built up a record of success of consultation on those 45 military installations where we have known and identified sacred sites, as well as the consultation which continues for the 15 military installations where we suspect there may be sites of concern to Native peoples. We are working that consultation aspect very hard. We aggressively include Native Americans in the consultation process. While I readily admit that we could continue to refine our policies, programs, and procedures, I am confident, with regard to most of the programs of military components which I am personally familiar, that that level of consultation is quite good, quite systematic, and adequately addresses a number of the statutory requirements that

we have to afford protection to cultural resources aboard those installations.

The CHAIRMAN. We have been advised that the Corps of Engineers is considering establishing an Indian desk at the headquarters level. Can you give us a status report on that?

Mr. DUNLOP. Mr. Chairman, why don't we take that particular question? Of course, as I indicated to you earlier, Mr. Smith actually operates in the Office of the Assistant Secretary as our assistant for environmental, regulatory, and tribal affairs, but, as regards to your question about the Corps of Engineers, headquarters Corps of Engineers, Chip, could you inform the committee of that?

Mr. SMITH. Mr. Chairman, an Indian desk has been a subject of discussion for some time. Recently, we have received six letters from tribes or tribal organizations bringing up the subject. We've had discussions with our office and the director of civil works at the Corps headquarters, and the director has assured us that they will consider the matter and try to determine how to incorporate that function in their business process.

The CHAIRMAN. We have found it rather strange because other Federal agencies have Indian desks and the Corps of Engineers, an agency that does a lot of business with Indian nations, is just considering it.

Mr. DUNLOP. Well, one of the things, Mr. Chairman, that I think we're kind of proud of is that we have really made an extraordinary effort, I believe, to incorporate throughout the entire fabric of our system this level of consciousness that you have expressed an interest in. Our directives, the two that I mentioned plus one I didn't, which is the tribal nations strategy which we've now finalized, at least as updated as of August 2001, is a very comprehensive approach so that throughout the entire Corps system this level of consciousness is something that our people are held accountable for. But I will, indeed, take back your concern to the chief, to the director of civil works, and, as we put together the manning and budgeting elements of the way they organize that agency, I will carry that message to you and we will give it highest consideration at our level.

The CHAIRMAN. I have many other questions, but may I call upon the vice chairman.

Senator CAMPBELL. Thank you, Mr. Chairman. This hearing is turning out to be tremendously interesting for me. I might commend the people here from the Defense Department and, in fact, all the different parts of the military. I think they have come a long way in 50 years, very frankly, to providing equal opportunity, equal pay, equal rank, things of that nature, that could be a model for many other agencies in the Federal Government and certainly many places in the private sector, too. It wasn't always that way. I come from an ancestry that the military was not particular fond of years ago, and Senator Inouye comes from one that certainly felt its discrimination up until World War II, so they have come a long way, and I just wanted to say that for the record.

Mr. Grone, you might know that just this morning we are honoring the Navajo Code Talkers. We did that once before about 1 year ago when President Bush awarded them the Gold Medal of Freedom. They are back here today for the movie that's being released

tonight, "Wind Talkers." They are here. That's an honor that is 50 years late for them, as you probably know, and I'm just delighted with the military's support of the bill that was introduced to do that by Senator Bingaman.

When we talk about protection of sacred sites, there are obviously some real problems with Indian people because, first of all, they weren't recorded. They didn't have a written language and they were reluctant to talk about them, and often sacred sites, unlike many places when we think of some religious connotation, there's no big building there. There's no edifice there. There might be just a field of grass. But for Native peoples, it is anywhere where their ancestors or their spirits lay. That's a sacred site for them.

There might not be imposing physical characteristics, but also many times I think that elders who know where the sites are were reluctant to talk about them, reluctant to share any information about them because it wasn't so long ago that they suffered a terrific problem with grave robbing, as you know, and still do—artifact stealing off of the public lands, as you know, too. There are many laws now in place to try to take care of it, but I think it is one of the reasons that Native peoples have really clammed up and don't speak about it.

So maybe let me pose the first question to Mr. Grone. When you are trying to identify geographical sites, have you encountered a reluctance on the part of any Indian people you deal with to open up about them for perhaps fear of further damage to that site?

Mr. GRONE. Senator Campbell, the military components have encountered from time to time some reluctance to identify sacred sites for precisely the reasons you enumerated. We work very hard. The chairman has indicated the efforts we've put into mapping, the efforts we've put into other forms of aggressive consultation with the tribes to try to determine precisely where sacred sites may be so that we can accommodate the military mission without disruption to Native American sacred sites.

We continue to work that very hard. I believe in nearly all cases we have been able to accommodate, once identified, access to and protection of sacred sites with the military mission and there is, as far as I am aware, no significant encroachment consideration or mission impact consideration with regard to the protection of those sites, but the key for the military departments, of course, and the components is the identification of the site, and so we continue our outreach activities, we continue our training activities, cultural communication, cultural sensitivity to be able to try to identify as many of those sites as we possibly can to adequately include them in our integrated cultural resource management plans and to adjust training schedules, training environments, and other activities in a way that it does afford the appropriate level of protection.

Senator CAMPBELL. Yes; let me maybe ask a question about my own State. You're certainly familiar with Pinon Canyon, Fort Carson.

Mr. GRONE. Very familiar, sir.

Senator CAMPBELL. It's a huge area where they train these MIA's and a lot of pretty sophisticated weaponry out there. Indian people historically have moved, and many of the people in that

area were nomadic. That area of Colorado at one time was pretty much controlled—well, it was controlled by whoever was strong enough to control it, I guess, but in that case it was Cheyennes and, I think, Southern Arapaho, some other groups that were in that area. Fort Carson has been there long before we took a real interest in trying to protect the things that are on that site.

I have been out there a number of times. In fact, they have a full-time archeologist there to try to make sure that those areas that have petroglyphs and different cultural or potentially religious places are protected.

I was wondering, when you deal with a mobile group—the only two land-based tribes in Colorado now are the Utes—who do you deal with when you're trying to protect these sites, because all sites are not sacred to all Indian people, as you probably know.

Mr. GRONE. Yes.

Senator CAMPBELL. Some are tribe-specific, but that tribe may not be there any more. It may have moved somewhere else or been moved by force by the Federal Government, so how do you know who you're supposed to deal with?

Mr. GRONE. That is a significant challenge for the components. As again with the mapping exercise and with trying to identify our treaty obligations from past treaty activity, that, in coordinate consultation with the ongoing consultation that we have, we do try to identify. We put a great deal of effort into lineal descendants. We've tried to ascertain where folks may have moved, where tribes may have moved, individuals may have moved over time. But everything, again, comes back to consultation and comes back to the ability of our staff and the component staffs, working through the archeological record, working through the cultural record, to try to identify.

Senator CAMPBELL. Do you do that for the people who were originally there?

Mr. GRONE. Yes; and in the case of Fort Carson, that activity has been underway, as you know, since 1983.

Senator CAMPBELL. Yes.

Mr. GRONE. And in the context certainly of the broader DOD program, but certainly in the case of the Army, Fort Carson has one of the most respected natural and cultural resource programs within the Department of Defense, led by a very able team of cultural and natural resource specialists, so they have been very active in trying to identify both permanent and migratory—

Senator CAMPBELL. Last time I was out there, I want to tell you that they gave me a very fine tour of the things that were being protected.

Mr. GRONE. Yes.

Senator CAMPBELL. But it did make me kind of wonder, from a nationwide standpoint, how much had already been lost before we knew it was there. I think generally we are doing a pretty good job and need to do a better job.

Mr. GRONE. Yes.

Senator CAMPBELL. But there must have been an awful lot of sites that are under concrete now that we may never know about.

Mr. GRONE. Certainly, sir, I believe that to be the case.

Senator CAMPBELL. Now, one other question. A couple of years ago, you know we went through the base closings and a lot of Federal surplus property was given back to different areas. How does the Department work with that? Has the Department ever turned over a former military base to an Indian tribe for cultural or religious purposes?

Mr. GRONE. Senator Campbell, I'm not aware that we have ever turned over an entire base to a tribe for that purpose. Usually, as you know, the base reuse process works through the local redevelopment authority mechanism, which is a recognized agent of the State, in terms of trying to put that property into effective reuse.

Senator CAMPBELL. When you do that, for instance, the Federal Government returned Fitzsimmons Hospital—

Mr. GRONE. Yes, sir.

Senator CAMPBELL [continuing]. To the State of Colorado. Are there restrictions that go with it, that is, if you have something in place to protect a site that is within the authority of your Department and you turn that over to a State, do those restrictions go with it so that the State must also comply with them?

Mr. GRONE. In general. I would have to, in part, take the question back, but my understanding of how we have proceeded is that existing restrictions with regard to the protection of historic and cultural assets as property transitions, the appropriate covenants and protections would pass through the title, so it would not be susceptible to disruption at that point.

[Information follows:]

RESTRICTIONS ON TRANSFERRING HISTORIC AND CULTURAL ASSETS

Whenever the military departments propose to dispose of real property they no longer require, whether as a result of a base closure or realignment decision or other process, the disposal must satisfy the requirements of the National Historic Preservation Act [NHPA]. In most cases, the most effective way to address these requirements and to ensure that historic properties, including sacred sites and other traditional cultural properties, will remain protected following transfer of the property is to record a preservation covenant as part of the transaction. These preservation covenants thereafter "run with the land" and operate to protect these historic properties indefinitely despite the fact that the NHPA may no longer be applicable directly [because the NHPA applies only to undertakings by the Federal agencies].

The NHPA requires Federal agencies simply to (1) "consult" with the Advisory Council on Historic Preservation, State Historic Preservation Office, or Tribal Historic Preservation office before proceeding with an undertaking that may affect listed or Register-eligible properties; and (2) affirmatively take into consideration such potential effects as part of the decisionmaking process. In this respect, the NHPA—like NEPA—is merely a procedural statute requiring agencies to "look before they leap." Consequently, the imposition of a preservation covenant is not, strictly speaking, legally required. Nonetheless, in most cases when listed or Register-eligible properties are being transferred out of Federal hands, the only way the transferring agency can ensure that these properties remain protected—and work through the section 106 process without provoking an adverse comment from the Council that must be responded to in writing by the Secretary—is to impose a preservation covenant.

Senator CAMPBELL. Okay. Can I ask Secretary Dunlop a couple, Mr. Chairman?

The CHAIRMAN. Yes.

Senator CAMPBELL. Secretary Dunlop, in the light of what's happened since 9/11 there's certainly a heightened state of preparedness nationwide. Does the authority that you now have put you in any more difficult position when you're negotiating or altering

projects under the new—you know, we're living in a different world now since 9/11 with homeland defense and increased security and so on. Has that affected your ability?

Mr. DUNLOP. Do you mean specifically in regard to these sacred sites?

Senator CAMPBELL. Yes.

Mr. DUNLOP. Well, sir, I think not. I think that my information is that, with the enactment of the Water Resources Development Act of 2000 there were two sections added, sections 203 and section 208, and both of those new authorities that Congress gave to the Army, to the Corps of Engineers, enabled us to more aggressively work with people who would be interested in these sacred lands, even to the extent, addressing the former question that you asked Mr. Grone about transferring lands.

Senator CAMPBELL. Yes.

Mr. DUNLOP. We can take lands that are in the Federal estate now and—

Senator CAMPBELL. So your decisionmaking process has not been measurably altered by 9/11 then?

Mr. DUNLOP. No, sir; well, I think that the principal way that every agency of the Government works, including ours, including every program and activity we engage in is allocation of resources. There is less money for those—

Senator CAMPBELL. Along the line of allocation of resources, I know that sometimes with other agencies like Park Service, BLM, and so on, we are told here in Congress that we are not providing enough resources for not only management, but enforcement. Have you found that true, too? For instance, if you have to arrest or detain someone found looting, which is still not uncommon, do you have the manpower to be able to do that effectively?

Mr. DUNLOP. Well, my information is that we've not had any significant, but Mr. Smith would be a more day-to-day person who could respond to that.

Senator CAMPBELL. You can answer that, Mr. Smith.

Mr. SMITH. Senator Campbell, enforcement really is a very important issue for the Corps of Engineers, all of our projects. As you know, most enforcement activities that the Corps does are by rangers, and rangers are essentially—well, they're trained in some aspects of enforcement. They are unarmed, and mostly they are trained as interpreters or educators, traffic control, and that sort of thing, recreational safety. What they need to do is develop agreements with local jurisdictions—which could include tribes, and does in some cases—so that when vandalism occurs and a ranger spots it they know who to contact that has the proper authority to arrest somebody, hold property, and take the appropriate action.

So yes, it is challenging, but we do what we can to develop cooperative agreements with local law enforcement jurisdictions.

Senator CAMPBELL. And the last question: Do you have an active Indian recruitment policy, for instance, for these rangers?

Mr. SMITH. In Indian Country primarily most of our district engineers who go through commander's training before they take command are informed of Indian Affairs issues and our need to reach out to Indian people. I know of six Native American coordinators that work for the Corps of Engineers now that are Indian, and they

annually go to job fairs and try to help Indian supply for jobs and come on board as engineers, scientists, social scientists, or other disciplines.

Senator CAMPBELL. Yes.

Mr. SMITH. I mean, we could do more, but we are reaching out and doing what we can.

Senator CAMPBELL. Well, I would encourage you to do that. I just happened to be on the road a couple nights ago, Senator, and stopped at a truck stop by Winslow, AZ, and there were about 60 or 80 young Navajo men in there that are members of what they call "Hot Shots." They battle fires out west. Some of our Federal agencies have done a terrific job of recruiting Indian people for jobs that they desperately need on reservations, so I would think this would also be an opportunity for recruitment.

Thank you. And thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

The committee wishes to commend the Air Force for working with the Acoma Pueblo in minimizing the disturbance that training flights have had on tribal ceremonial use and on sacred sites. Do you have any systematic way or any policy on how to work with tribes to minimize this type of intrusion—noise and visual?

Mr. GRONE. Senator, we work with the tribes as we do with all affected parties with regard to noise control for purposes of the training and readiness of the force. There are specific certainly unique aspects in the context of protection of sacred sites. The Air Force I'm aware has a very sort of aggressive internally and works through their consultation process. Again, everything that we do in the Department precedes from the basic four pillars of the 1998 policy, which is why, again, we stress the flexibility of the consultative process. There is no one-size-fits-all, although we very clearly try to take lessons learned from particular cases and try to apply them in others, but recognizing that there are unique circumstances either dictated by the military mission or dictated by particular cultural issues. Commanders have flexibility within that consultative process to address the concerns of Indian people with regard to a training activity or an overflight issue, and there are multiple issues of that ongoing on a daily basis, weekly basis, monthly basis where we are trying to adequately address those concerns, and the Air Force in most cases, in nearly all cases, is able to effectively work a process through consultation that addresses these concerns.

The CHAIRMAN. Recently the president of the Fort Belknap Indian Community briefed the committee on the proposed Air National Guard bombing range in Montana, and I wish to commend the Air National Guard for its level of cooperation and partnership with the tribe because it is an impressive thing, and the current committee strongly recommends and encourages this type of collaboration.

I just cited this to assure you that this is not a hearing to pick on the Department of Defense. There is good and bad. And if I may most respectfully suggest, if time permits, that you stay around, because the witnesses that follow have a few complaints, primarily about the Corps of Engineers. That seems to me, from what we

have gathered from our hearings and investigation, to be the weak link, so if you could stay around I would appreciate it.

Mr. GRONE. Senator, I would be pleased to attend the rest of the hearing and to hear the concerns of the following witnesses.

The CHAIRMAN. Thank you very much.

Do you have anything?

Senator CAMPBELL. No further questions. Thank you, Mr. Chairman.

The CHAIRMAN. Secretary Grone and Secretary Dunlop, Mr. Smith, thank you very much.

Mr. GRONE. Thank you, sir.

Mr. DUNLOP. Thank you.

Mr. SMITH. Thank you.

The CHAIRMAN. Our next panel is the chairman of Three Affiliated Tribes Business Council and also the president of the National Congress of American Indians, Tex Hall; and the chairperson of the Lone Pine Paiute-Shoshone Tribe of California, Rachel A. Joseph.

President Hall, [Native word], sir.

Mr. HALL. [Native words.]

STATEMENT OF TEX HALL, CHAIRMAN, THREE AFFILIATED TRIBES BUSINESS COUNCIL, NEW TOWN, ND, AND PRESIDENT, NATIONAL CONGRESS OF AMERICAN INDIANS, WASHINGTON, DC

Mr. HALL. Good morning, Chairman Inouye, Vice Chairman Campbell, members of the committee. It gives me a great honor and privilege to be able to testify today on a very important committee hearing on protection of sacred lands throughout Indian Country.

NCAI, National Congress of American Indians, has been working closely with a number of tribes and Morningstar Institute. We have also been working with the National Trust for Historic Preservation, USET—the United South and Eastern Tribes, NARF—the Native American Rights Fund, and, again, many other tribes in forming a coalition to really look at this issue, Mr. Chairman, members of the committee. This is an issue that is so important for Indian tribes and Indian Country.

I have submitted my testimony and I will be talking about five points, but, just briefly, Mr. Chairman, on the background, it seems that, in listening to the previous testimony by the officials of the Army Corps of Engineers—and I'm sure they're trying to do a good job and I'm sure they really feel that they are doing what is necessary to consult with tribes, but I think that's one of our biggest problems is that we have a difference of opinion. Indian Country feels there's a lack of consultation, it's not up to what it should be, and there's a lack of the compliance with Executive Order 13007 that was mentioned. There needs to be some sort of a mechanism to mandate full and meaningful consultation at the onset, let alone whenever there is legislation that is proposed or enacted on transfers of Federal lands to State entities—for example, to a State. Then clearly the consultation process simply is not there. It may be a name, but it's simply not there.

There's no mechanism for tribes to really look to safeguard those sites, so consultation really is one of my five points, and that's

clearly something that I would strongly—and, of course, our coalition will provide some recommendations—that we think is a big weakness that we really have to look at.

Again, even if a transfer does take place, what Federal protections are in place for those sites that have been transferred on that former Federal property? There really is no mechanism. Tribes are still asking for that, and especially in the area of the Missouri River that you mentioned. Of course that's my neck of the woods, Mr. Chairman. That's where I come from. We feel that we're losing ground, so to speak, on the river. The Missouri River, as people know, people that are in the know know that it is an endangered river.

I want to commend you, though, Mr. Chairman and Vice Chairman Campbell about having this hearing. This is a very important hearing, and it is not only for Native American people, it is for people of all color that are concerned about protection of sacred sites and the protection of the river, and so this is a very important hearing for all of us as we look to have better protections.

Again, consultation is something that clearly needs to be strengthened before an action takes place and once an action does take place through legislative means.

A second point is on existing Federal law. As I mentioned, NAGPRA and national historic preservation apply, but once the transfer takes place, if it is silent in the legislation, then what? What does a tribe do when it is trying to protect its sites? What if there is a commercial project on a known Native American site? And even if the Federal Government knows about this site, if the legislation is silent in terms of the Federal protections, then where does the tribe go? What is the Army Corps of Engineers' trust responsibility at that time? If it is silent, that's what tribes are concerned about. Then the tribes don't have a means to protect those sites.

Tribes really have the wherewithal in terms of their tribal historic preservation offices, as well. We have some of the greatest experts. I appreciate, Senator Campbell, your comments about possible hirings. There is, as we know, a number of unemployed Native Americans that are very capable in this area that could be a tremendous asset, but, for whatever reason, not being actively recruited, not being actively utilized, and I think there needs to be something set in place that really looks to actively recruit and hire.

In our neck of the woods, alone, we had to work long and hard to get a member of our tribe hired. We appreciate that, that the Army Corps of Engineers has hired one of our members, but that's one of a very few. I mean, it's less than—of all the total number of employees in the Army Corps of Engineers, I would venture to guess Native Americans are less than one-half of 1 percent.

If you look at the total number of Indian lands, we're a lot higher than one-half of 1 percent. We're probably closer to over 10 percent. So one-half of 1 percent, in my opinion, is not acceptable. And the expertise and the capability is there, so we don't know what the problem is as to why we can't move forward and get more Native Americans hired that have the knowledge.

If so, I think we would close that gap a lot sooner in terms of doing archaeological surveys, doing adequate and meaningful con-

sultation, and helping with that government-to-government relationship that at times we're seeing the gap widening.

Existing Federal law, the Executive Order 13007, we need to strongly look at how we go about strengthening that. We're very pleased to hear, as the Secretary mentioned, that there will be a meeting in Pierre, South Dakota, on June 12 on the Missouri River. I want to commend them for doing that. That is a tremendous issue. I want to commend the committee for having the leadership for this. We're all looking forward to that in the tribes in attending that hearing, and we just are very concerned that our issues are going to be heard and there's going to be meaningful consultation.

As the committee probably knows, the Lewis & Clark bicentennial will be coming very soon, 2003 to 2006, and we're very concerned about it. We've talked about protection enforcement of law enforcement. We feel there's a lack of it. With the possibility of millions of visitors along the trail, if we can't protect what we have currently, we surely are not going to be able to protect with the future of Lewis & Clark.

The agreements sound good, but there is just a lack of them. There is a lack of agreements that have been facilitated between the Army Corps and tribes, and I would strongly encourage Army Corps and tribal agreements, because tribes are the best suited to enforce because more chances are not it's on their land. Their land is within the reservation. And so in my neck of the woods we have the river and we have Indian land, reservation land, on both sides of the river, and so does our sister tribe down south of us, Standing Rock, as well.

But up and down the river, from St. Louis to Portland, we feel there's going to be a huge advent of visitors, and right now if we don't have adequate agreements, if we don't have adequate funding, and if we don't have adequate mechanisms in place, we're surely not going to be able to safeguard our sacred sites.

There are many examples, Mr. Chairman, that I could get into of tribes that have called and have talked about looting that's going on right now as we speak, and that's not even taking into consideration—they say the Missouri River is losing between 30 and 40 feet per year, and that is exposing more sites, and when the water levels drop—and we know about the Master Manual and the efforts that the Army Corps of Engineers is doing to get that passed, and then the litigation for South Dakota and North Dakota and Montana about stopping the flow of water down south, but, nevertheless, with the dry conditions that are out in the west, that river has dropped. With that droppage and with that loss of 30 to 40 feet there are more sites being exposed and the Corps can't keep up. The Corps cannot keep up with its limited resources to adequately protect those lands and those sites.

Members of our coalition say it is going to take \$9 million a year at a minimum to protect our sacred sites along the river at the Missouri River, but I didn't hear what the Corps said was in their budget, but I bet you it is less than \$1 million. I bet you it's less than \$500,000. That would be about 5 percent of what they need. With 5 percent of what they need, clearly they don't have the resources, and I don't know if they're asking for it. I don't know if the Army Corps is asking for it in their budget, but clearly that has

to be one of the trust responsibilities that the Army Corps of Engineers has. That is a big issue with us.

Tribes are trained. We went through the Department of Justice cops fast grants. Many tribes have committed to training our own local tribal members to become law enforcement officials. Tribes have game and fish departments. We have the knowledge, we have the expertise, we have training, but still not being utilized.

Those agreements are taking far too long and they're just not completed. Again, we don't know what the issue is. We have cultural preservation officers. We have law enforcement officers. We are just not getting to the agreement side and getting things signed off.

And then, of course, the funding. I just mentioned that funding, but, Mr. Chairman, I could go on and on about further examples, but I know there will be other tribal people testifying, and we just again, in closing, want to say we look forward to the continued dialog with the committee, and the coalition stands ready, as well as NCAI, in assisting and helping in what comes out of these hearings as to the next step forward, so thank you for your time, for giving me this afternoon.

The CHAIRMAN. Thank you very much, President Hall.

[Prepared statement of Mr. Hall appears in appendix.]

The CHAIRMAN. Now may I recognize Chairperson Joseph.

**STATEMENT OF RACHEL A. JOSEPH, CHAIRPERSON, LONE
PINE PAIUTE-SHOSHONE TRIBE, LONE PINE, CA**

Ms. JOSEPH. Good morning, Mr. Chairman, Vice Chairman Campbell. I am Rachel Joseph, chairwoman of the Lone Pine Paiute-Shoshone Tribe in the Owens Valley located on the eastern side of the Sierras in central California.

I am very honored to be here this morning to testify on behalf of my tribe and the Shoshone-Paiute, including my parents, who have prayed, worshipped, and healed themselves at the Coso Hot Springs.

The Coso Hot Springs have been used by my people from time immemorial, and the healing power of the warm Coso water and mud is no longer the same. In 1947, the Department of Navy acquired the Coso Hot Springs through condemnation, and, because the area was believed to be rich in geothermal energy, plans were moved forward to tap this energy resource in the late 1970's with the Navy contracting with a private agency to develop the geothermal plant near the Coso Hot Springs. In January 1978 the Coso Hot Springs were placed on the National Register of Historic Places.

Tribal members and the State historic preservation officer at the time expressed concern that geothermal production around the hot springs would have an adverse effect, and, indeed, it has. Over the years the temperature of the hot springs and mud have grown so intensely hot that we can no longer bathe there. We have asked the Navy to address the conditions of this springs, without success. Over 10 years ago the Navy, using its own resources and staff, reported that there was no connection between the conditions of the spring and the geothermal development next to the springs.

We have been without the resources, and consequently not able to do our own independent, unbiased evaluation of the hot springs to determine the cause of the destruction and desecration. We do, however, have common sense observation that the temperature continues to rise and there's a difference in even the way the mud appears. It no longer is the pure, off-white mud, but now a multi-color-streaked mud that exists there.

Our need to continue to protect the hot springs continues today. The Navy has currently moved forward with further testing, deep wells, north of the springs to determine whether geothermal production and development should be expanded.

My tribe, as well as every tribe in the Owens Valley, objected to the test well. The Navy received our comments, as required, but has done nothing with them. The test well has gone forward, and we are left waiting for the next step, which we believe is to expand the development and production near the springs.

I would like to summarize the rest of my testimony by stating my heart-felt observation and feelings about what continues to happen there. We have been engaged with meaningful tribal consultation with the leadership at Nellis Air Force Base for a number of years, and this consultation includes the employment of tribally-sanctioned monitors to be involved in activities at sacred areas or at significant sites. Because of that model program, the contrast of how the Navy has been dealing with us is more apparent, to the point that it appears like blatant disregard for addressing the issues that are important to us.

For the record—and I have submitted a recent letter from our tribal attorney dated April 9 regarding to our efforts to have monitors on site at this test drilling—the mitigation measures require that the Navy facilitate the use of tribal monitors, which they have insisted they have no money to pay for, and it is important that the tribes have monitors, so we identified, submitted the names ahead of time as required.

The day that they showed up at the mandatory training, they had to wait almost an hour, and then the name tags that were provided had just on them "Indian." There was no name on their name tags, even though names had been provided weeks ahead of time.

In addition, after publication of the FONSI—Fact of No Significant Finding—they notified us on Friday that the testing would begin the following Monday. Our monitors showed up. They were advised that they were to stay on site for 10 hours 7 days a week and to be there for almost 3 weeks without leaving the facility. This, in fact, does not facilitate the kind of monitoring that needs to happen in sacred areas and at significant sites. We were also advised that the monitors could not go within 50 feet of the equipment that was doing the drilling, which, for those of us that have an understanding of the work of monitors know they need to be close enough to observe, as the earth is being moved and there's activity, to see if, in fact, they are uncovering or moving artifacts or religious objects in the area.

We thank you for the opportunity to testify today and hope that we can receive assistance to ensure that the area is restored so that our people can use the area as they formerly used it, which includes immersing themselves in the water and the mud that was

so necessary to the healing and the practice that we have engaged in for decades there.

We believe that the Navy needs to be more responsive and considerate and sensitive to the fact that this is sacred area, and not to treat us as a deterrent to them moving forward with whatever their goals may be.

Thank you again for the opportunity. We certainly would support any effort to introduce legislation that would we think, refocus some of these Federal agencies on the area that they need to address.

Thank you for your time.

The CHAIRMAN. Thank you very much, Chairwoman Joseph.

[Prepared statement of Ms. Joseph appears in appendix.]

The CHAIRMAN. Before I proceed with questions, I think it should be noted, and I do so as chairman of the Defense Appropriations Subcommittee, that our major concern in the military consists of recruiting and retaining personnel. As some of you are aware, all of the men and women who serve are volunteers. There is no draft. It just happens that since World War II, on a per capita basis, more Indians have volunteered to serve in our military than any other ethnic group, and so I would hope that the Department of Defense will take note of that in their recruiting programs.

President Hall, we have received reports on the Missouri River problem suggesting that, as the waters recede, graves have been opened and bodies have been floating. These are bodies that should have been relocated before the dams were authorized; is that correct?

Mr. HALL. That's correct, Mr. Chairman. Just last year we had a couple of bodies floating out, so it happens every year. You have a number of remains that end up in the river, and, of course, our tribal historic preservation office is called immediately, but, again, these are all sites that should have been taken care of before the flooding with the Federal dams.

The CHAIRMAN. Did the agency advise you that the agreement had been complied with and all bodies were relocated before the project began?

Mr. HALL. Our elders sure have told us that, Mr. Chairman, that that was the one thing that our elders, approximately 50 or 60 years ago, were adamant about, but, of course, we continue to see that it didn't take place. And even some of the cemeteries—of course, we know that in our traditional and cultural way, the way that our bodies are laid is in line with the coming of the sun to the easterly direction, so even those that our elders consulted the Army Corps 50 or 60 years ago, they were placed the wrong way, as well, so even those that were buried and removed, they were placed in cemeteries in the wrong direction.

The CHAIRMAN. Do you have any suggestions as to how we can improve this consultation process?

Mr. HALL. I would think that there should be some mandates and 13007 should be further strengthened that, at the onset, they are to meet in a government-to-government with tribes, and particularly the affected tribe, so that way things can get worked out before any proposed legislation would or any administrative action would take place until that tribe is satisfied, because I think too

many times Federal agencies think that, "Well, if we talk to the tribe we're going to write it down as consultation, so we consulted with that tribe," and they take it as they fulfilled the requirements under an executive order, where the tribe is saying, "Well, we just talked to you once, and we disagreed with you, but you went ahead." And so there clearly is some difference of opinion on consultation, so that needs to be laid out where there's full and meaningful consultation throughout the process until that affected tribe is satisfied that their interests are protected, and then the consultation on that particular issue is complete. Right now it doesn't say that.

The CHAIRMAN. Has the NCAI involved itself in this process?

Mr. HALL. We have with the Department of the Interior, our Bureau of Indian Affairs consultation, so we have NCAI, in working with consulting the tribes, has done a very good job, I think, on that particular consultation process with DOI, but we really haven't with the Army Corps.

The CHAIRMAN. Chairwoman Joseph, you've just given us a report on the Coso Hot Springs problem. I gather that you have requested a meeting with the Navy. Have they responded to you?

Ms. JOSEPH. Yes; we requested a meeting of the Navy to come to the valley and meet with the tribe councils of five tribes, and they responded saying that the commander is new and he couldn't work it into his schedule and gave us less than 2 weeks for us to go there. Certainly, we think there is a purpose to receiving a VIP tour and a lunch, but we wanted to sit down and talk government-to-government about our issues related to the test drilling. So we've invited him to the area. He, in turn, responded for us to come there. It just made sense, rather than have 25 officials travel south for the commander and his staff to come to the area. So yes, we've followed up in an April letter requesting additional meetings.

The CHAIRMAN. I think the commander will be coming to your place.

Ms. JOSEPH. I would hope so.

The CHAIRMAN. I just noticed the Secretary was jotting down notes.

Do you have recommendations, President Hall, as to how we deal with consultation other than strengthening 13007?

Mr. HALL. Mr. Chairman, like the Department of the Interior, that consultation piece, I would recommend the same process that NCAI could assist in that. I believe the Army Corps of Engineers is working on a consultation policy. We have discussed it, at least in the Omaha District, previously. I don't know where that process is at in terms of their mark-up or their write-up of the consultation policy. Whenever that process is done, I think we need to put timelines. I mean, clearly this should have been done a long time ago. We should put timelines and we should get that draft and we should start providing consultation through Indian Country within the timeline, and it could be similar to the DOI process, but it has just been out there too long.

And then, with the advent of the Lewis & Clark and all of the droppage of the river with the shoreline, this is an issue that is not going to go away. It's going to get worse and worse.

I would think we could get this process done, Mr. Chairman and Senator Campbell, and this could probably get done in 6 months to 1 year. It's not going to take that long, you know, because this is something, when you talk and put notice out to tribes about a proposed consultation policy, everybody is going to pick that up, especially on this issue with the Army Corps. I mean, all the tribes are going to put their comments in and are going to want to weigh in on this.

But, as I said, this is something that has already been done as a successful model with the latest one at DOI, but it has to have an enforcement mechanism of any consultation policy.

What if a Federal agency does not comply with its executive order? Then what? That's something I think we really need to think about is what if there is a lack of compliance of that consultation and what mechanisms are there for the tribe. That's, I think, one of the biggest things that we left out there.

The CHAIRMAN. You are exercising one of the mechanisms. You are here.

Mr. HALL. Yes.

The CHAIRMAN. Mr. Vice Chairman.

Senator CAMPBELL. Yes: thank you, Mr. Chairman. I think you are absolutely right. Too often when tribes deal with any agents of the Federal Government we don't know it here in the committee, and some of them are very sensitive and helpful and some of them are less sensitive and less helpful.

Rachel, I've known you for 25 years. I've never known you to be a shrinking violet about saying your beliefs or what you need as an Indian person or for your tribe, too.

Senator Inouye and I are chairman and vice chairman. We also are senior members of the Appropriations Committee. Sometimes we can get their attention—not always, but certainly we can help, so you need to do that. Tell us where we can help and I know I will be and I'm sure Senator Inouye will be, too.

It's really surprising to me that when Federal agencies are trying to implement something that deals with the Endangered Species Act, for instance, consultation is pretty in-depth and they take into consideration every bug and every snake and every spider and kangaroo rats and jumping mice and a fish whose name I hate, the squawfish, and everything else when we're talking about making some movement. It's rather surprising to hear that there are bodies still floating up out of the ground in an area that was never carefully looked at or consultation was not done before the dams were being built.

Consultation clearly is not the same as informing. Too often, Indian tribes are informed, and I think that you may be right, Tex, that sometimes the agencies think that meant consultation, but that's not the way Indian people work. I mean, consultation, that begins a dialogue that has to filter out through literally everybody within the tribal group and come back before there is some type of consensus on what needs to be done.

I also note with interest that other agencies like the IHS and the BIA have done, really authorizing it over the years, more and more contracting with tribes. I was wondering if you think the tribes would be interested in contracting with the DOD for those areas

that we're talking about that they could deal with. I don't know if the agencies need authorizing language, but I certainly would be interested in helping from that forum.

Tex, what do you think?

Mr. HALL. I think that's a tremendous idea, Senator Campbell. That ability to contract some of the functions that the Army Corps is doing, I think the tribes that are there have the expertise and capability. Law enforcement is one of them. You know, protection of those sacred sites is clearly an example that we could do right away.

Doing the archeological surveys is another example of contracting with a tribal government that has that expertise that lives and resides in that aboriginal homeland. It's clearly an example of how a tribe has the knowledge and is right there and can move that process much faster and for less money as well, I would say.

Senator CAMPBELL. There is a bill Congressman Young apparently has introduced on the House side that deals with something along this line for Alaska, but we'll certainly look into seeing if we can frame something up to allow agencies to do that if they don't have the ability to do that now.

Also, as I understand in your testimony, Tex, you state that Indian people have a different view of what is called "sacred" and who constitutes a practitioner of a religious activity. You point out that a young Indian boy going to an ancient vision quest or proving area might not fit within the range of existing Federal protections. That has always been a problem, of course, about who constitutes a practitioner, as we've seen with the Native American Church, where actually some non-Indian people in some areas belong to the Native American Church and some of the things get cross-ways with other laws that are already on the books.

But would you elaborate just a little bit about how do we—tell us a little bit more about the problem, how it presents itself and how do we address it.

Mr. HALL. Many of our tribes, Senator Campbell, as you know, only that particular tribe has knowledge of that site or of that area of worship. For example, it could even be a clan. It could be a clan within that tribe. In our neck of the woods we have a butte. It's called Table Butte. It is from the Locap Clan. The Locap Clan originated from the Table Butte, and so part of that butte is on private land and part of that butte is on U.S. Forest Service Land, national grasslands. And so when our members want to go up and fast as they get ready for the sun dances—as you know, that's all happening in the next week or so from now until the first part of August in our part of the country.

Senator CAMPBELL. Yes.

Mr. HALL. And so they're fasting in preparation for the sun dance. There are so many times that we continue to hear today that they don't have access. The private landowner kicks them down or they're having a problem getting approval through the national grasslands through the United States Forest Service.

Surely, the private landowner does not have any knowledge of how that sacred—

Senator CAMPBELL. And, in fact, even some other tribal members might not if—

Mr. HALL. If they're not from that clan.

Senator CAMPBELL [continuing]. They're not from that clan.

Mr. HALL. Exactly.

Senator CAMPBELL. We face that in all tribes, in fact.

Mr. HALL. If they're not from that clan. And so the elders are saying that this is a Locap Clan origination and this is a sacred site, so they're helping educate. As a matter of fact, one of the elders who is not a member of that fan is fasting and has done and has been kicked down from that site many times, but he has to continually—we, as a tribe, have to continually determine that that is a sacred site because it is a birthplace of a clan and it must be safeguarded. Unfortunately, we have no control of that site, and so access is a continued problem for that sacred site.

Senator CAMPBELL. Yes.

Mr. HALL. And so I think the responsibility of determining that sacredness has to come from that tribe. In our case, Three Affiliated Tribes has to help educate, you know, not only our own tribe, but we have to educate the Forest Service, we have to educate the Federal Government, and then the private landowner as to the meanings of that site and what it means to us.

But, in general terms, you know, we all know that the Black Hills, for example, are sacred. They are the birthplace. That's an ongoing problem for the Lakota as they go out to worship in that sacred area.

However, there are other areas that may be an area. Maybe as you mentioned it could be a grassland. There could have been a battle that happened long ago and not too many people maybe know about that battle, but the tribe does, and some people may question, you know, that could be used for farming or that could be used for agricultural purposes. How can you tell us that's a sacred site? And only that affected tribe or that affected clan may determine its sacredness.

Again, I think that's where that government-to-government consultation really needs to be complied with, and that consultation policy is critical to that affected Indian tribe in coming up with what that significance of that site holds to that particular tribe.

Senator CAMPBELL. Well, I think particularly tribe-specific or clan-specific is even more important because we've seen other laws already in place sometimes used to stop development just for the point of stopping development. The Endangered Species Act, in my view, is one of the most misused laws on the books now. I know that there's a possibility—you know, if it wasn't tribe-specific or clan-specific that this could also be misused to stop some kind of a building process.

Rachel, I understand from your testimony that you had a very good working relationship with Nellis Air Force Base. I'm very happy to hear that, since that's where I spent the last 1½ years of my enlistment at Nellis and enjoyed it very much.

Let me ask you this. At least one agency, the Department of the Interior, provides funds and works to protect historic or environmentally sensitive properties through the use of conservation easements. In fact, they provide money to do that. Do you think it would be wise or useful to authorize the Federal agencies to issue

cultural protection easements so that certain Federal properties could be restricted in their use to accommodate Native concerns?

Ms. JOSEPH. Yes, Senator; I think it would be not only wise, but I think an option that needs to be there for the tribes to ensure that we have, you know, those opportunities. I do thank you for your previous comment about not being shy and retiring, but I did tell the staff yesterday that there have been instances in my life where I felt helpless to deal with the situation, and this happened to be one of those. I think part of that seems to be the disregard. It's almost like a test of wills, like who is going to come to whose home for a visit. If there's an unwillingness to come and meet with us, how do you even really begin the meaningful dialogue and consultation.

Senator CAMPBELL. Clearly, you can't take the site to them.

Ms. JOSEPH. Right.

Senator CAMPBELL. They've got to come to the site.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Chairwoman Joseph and President Hall.

Ms. JOSEPH. Thank you.

Mr. HALL. [Native words.]

The CHAIRMAN. Our next panel consists of the following: The NAGPRA representative and cultural resources consultant of the Mandan, Hidatsa, Arikara Nation of North Dakota, Pemina Yellow Bird; the cultural resources officer, Lower Brule Sioux Tribal Council of South Dakota, Scott Jones; the tribal and historic preservation officer of the Comanche Nation of Oklahoma, Jimmy Arterberry; a member of the Winnemem Wintu Tribe of California, Caleen Sisk-Franco, accompanied by Mark Franco; and a member of the Village of Lower Moencopi of Arizona, Leonard Selestewa.

May I first call upon Ms. Yellow Bird.

STATEMENT OF PEMINA D. YELLOW BIRD, NAGPRA REPRESENTATIVE AND CULTURAL RESOURCES CONSULTANT, MANDAN, HIDATSA, ARIKARA NATION, BELCOURT, ND

Ms. YELLOW BIRD. DaSKAshas. Mabeedzagidz. Nawah. In a respectful way, I extend my greetings to Mr. Chairman, Mr. Vice Chairman, the rest of the committee members, and the staff. And Agu Wa'Guxdish, I greet you in a respectful way like a relative and say thank you to you for holding today's important hearing to gather information on the preservation and protection of our people's holy places.

As you know, my name is Pemina Yellow Bird. I am an enrolled member of the Mandan, Hidatsa, Arikara Nation from the Upper Missouri River. As you also know, our ancestors lived on the Missouri River for many, many, many thousands of years, both banks, from its headwaters to the Gulf of Mexico, and our ancestors left behind thousands and thousands of earth lodge village sites, burials, prayer sites—places whose sacredness was revealed to us by the creator.

Since the 1940's, since the creation of the dam system on Adiba Waduxte—in our language we say mysterious or holy grandfather—the Missouri River, his life has suffered, as has ours. The creation of the dams and the reservoirs on the Missouri River has

caused the hastening of erosion and destruction of places that are holy to us that are irreplaceable, and that's why we're here today.

For many, many years, as Chairman Hall stated earlier, our nation and other Missouri River tribes have worked very hard to work with the Army Corps to protect and preserve places that can't be replaced for us. They are holy and we need them for our ceremonies. We need them for our people to continue. But, unfortunately, with the Army Corps of Engineers our sacred and cultural places are not an agency priority. This lack of importance to them is reflected in the kinds of resources that are dedicated to the preservation and protection of our holy places.

Since 1978, a grand total of \$1,933,000 has been spent to stabilize the shoreline at 19 sacred sites—19 out of more than 3,000 known sites.

Our tribes have been consistent in asking for new surveys of Army Corps lands on the Missouri River, because we're told by contemporary archaeologists with experience on the Missouri River that, if new surveys were to be done, that number, 3,000 sites, we would find four to five times more sites that we could identify, we could map them, we could nominate them for inclusion into the National Register and get them protected, but we have not been able to secure new surveys on all Corps-managed lands along the Missouri River.

Nothing less than a paradigm shift needs to take place in the way that the Missouri River is managed by the Army Corps. Indigenous nations require pre-decisional, meaningful consultation with the government agency whose Federal trust responsibility has the fate of our sites in their hands.

We need Congress to appropriate necessary moneys to stabilize the shoreline. The Omaha District of the Army Corps has a wish list, \$77 million worth of stabilization projects that would protect thousands of sites that are integral and critical to the survival of our peoples.

Agu Wa'Guxdish, our beloved grandfather, no longer flows within the reservation boundaries where my people live. We have to leave our reservation to find the free-flowing water. The vast majority of ancient, sacred places within our boundaries now lie under his waters, forever reversed and stilled. This makes the relatively few places still in existence, where our ancestors once lived and loved, even more precious to us because they are all that we have left. Our need for the life given to us by our Grandfather and our Holy Places is so great that it is not an exaggeration to say that our nation's revitalization and survival depend on their survival. Those sacred places are all that stand between us as a living, flourishing nation and the disappearance of our people's long and ancient history alongside the moving, living waters of our precious Grandfather. Flooding us out of our homelands broke our hearts but it did not break our spirits, and the people of the Mandan, Hidatsa, and Arikara Nation stand ready to take whatever action we must take to preserve a place to pray for the generations who are coming, because the living and Holy Being who brought our nations through thousands of years of life is dying, Agu Wa'Gux Dish, and he and our people just want to live.

Something needs to be done, and it needs to be done now, or else it won't be anything for our generations. There won't be anything for them.

I say thank you to you for listening. I want to close my remarks by saying We DuT Dunst Stut. In our language that means, "That's the way things always were, that's the way they are today, and that's the way they will always be."

The CHAIRMAN. I thank you very much, Ms. Yellow Bird.

[Prepared statement of Ms. Yellow Bird appears in appendix.]

The CHAIRMAN. May I now recognize Mr. Scott Jones.

STATEMENT OF SCOTT JONES, CULTURAL RESOURCES OFFICER, LOWER BRULE SIOUX TRIBAL COUNCIL, LOWER BRULE, SD

Mr. JONES. [Native words.] Good morning, everyone. Mr. Chairman, committee members, guests, and honored tribal leaders, my name is Scott Jones. I am an enrolled member of the Lower Brule Sioux Tribe, and I have been a liaison with the Corps of Engineers since 1988 on behalf of the tribe.

There are so many issues and problems it is difficult in only 5 minutes to know where to begin, so I shall begin with what is most important, the resource, in this case, the Missouri River.

Since the glaciers pulled back some 12,000 years ago, the Missouri River Basin has been continuously occupied by indigenous Indian cultures. It is sacred to my people because the river gave us life and the ability to sustain life. The river gave us food and enabled vast trade routes to be established. In recent history, the river enabled the expansion and colonization of this country by the EuroAmerican, and the river, as we know it today, has become very important to many interests, providing trade, energy, flood control, recreation, and irrigation, just to mention a few. The river is still sacred to my people today.

The EuroAmerican expansion and continuous growth gave way to treaties and laws. The law of the land set forth compensations for the aboriginal peoples whose lands have been taken, oftentimes illegally. These treaties and laws established trust responsibilities to ensure government agencies treated aboriginal nations fairly and equally. Many of these treaties and laws set forth protections for our sacred areas and lands that sustained our culture, and some of these laws specifically addressed the trust rights and management of the Missouri River and the lands that make up her basin.

Please remember that these dams and the lakes they created are not historic. They were created and built in my lifetime.

The fulfilling of these trust responsibilities did not offer Native people, particularly those who lived on the river, a role in the creation of this Federal monster, that is, the system of Missouri River mainstem dams, but rather entire Native populations were removed from the safety of their reservation homes, had their farms and gathering areas flooded, our burial grounds flooded or exposed, and our traditional life ways thrown into turmoil in my lifetime.

The agency responsible for the operation and maintenance of this Federal monster, the Army Corps of Engineers, under the Department of the Army, has, for the last 50 years, appeared to conduct business with the left hand not caring or knowing what the right

hand is doing. They have been evasive and non-committal in their dealings.

More recent tribally friendly executive orders, Federal law, and amendments to existing Federal law have enabled tribes to force the Army Corps of Engineers to confront specific issues and badger them into creating solutions, then only too often having to watch these solutions disappear into the dark hole of a Federal file cabinet, never to be acted upon, never to be implemented or considered in any other Federal action.

We are in a new century now. Tribes understand the demands for energy. Tribes understand that we are at war with terrorism. Tribes, and particularly those who live along the river and specifically my tribe, the Lower Brule Sioux, have consistently asked for participatory rights in decisionmaking on those issues which directly impact and affect us. At this point we are asking that existing rights under existing law be followed, as they should be, as well as asking that consideration of any future legislation be inclusive of actual on-the-ground tribal need.

Some actions I would recommend include the following: Develop partnerships which create co-management; ensure tribal participation—real, meaningful participation; provide oversight from both Congress and senior Department of Army personnel on the activities of the Corps of Engineers and to ensure that they are truly fulfilling their trust responsibility; require that the Corps of Engineers set a small percentage of each project aside to assist in paying for tribal consultation; address the river holistically as the river basin that it is, not as a series of segments; and crisis management through the development of memoranda of agreement with each affected tribe so that management is inclusive and responsibilities can be shared; encourage contracting with tribes, not outside firms.

Tribes are major stakeholders on this river because of our aboriginal rights, our unique legal and political status, and because our continued survival depends on the health and well-being of this sacred river. It is imperative that you understand that these Native resources—every plant, every rock, every tree, our rivers, and our springs—are potentially a required part of a medicine or used in a traditional worship activity. The very fabric of our culture is built with natural material that evolves back into Mother Earth.

Aboriginal cultures were founded in the natural resource. EuroAmerican culture was based upon man-made, materialistic resources. The laws that we live under today do not recognize nor are they reflective of this fundamental difference.

As I have said before, we all recognize the demands of development, of recreation, of flood control, and of energy. There is no reason for us to always be at odds. The demands of this century can be met by working together. Working together, we can protect this resource, we can create solutions, we can create jobs on reservations, and we can create ways to manage energy needs and development in a responsible way that will carry us into the future, and perhaps we can even save our sacred, dying river, the [Native word], the Missouri River.

Creating organizations such as the Sacred Lands Protection Coalition which acknowledge and accept the tribal lead will foster understanding, while ensuring tribes have an adequate voice to pro-

tect our freedom of religion through the preservation of and access to sacred sites, gathering areas, and necessary natural resources for the continued vitality of our threatened traditional worship practices and life ways.

Mr. Chairman, I was very interested this morning to hear how the Federal agency is dealing with these issues, and I heard, I believe, the first individual that spoke refer to agreements, MOAs, I believe I heard him refer to. Sir, we have an MOA we submitted to the Corps of Engineers February 12, 2001. We haven't even received a letter responding to that MOA from the chairman of the tribe. It was sent to Colonel Tillitson, who was the Omaha District engineer at the time. Not even a letter acknowledging receipt of this document, sir.

It is very troubling to me to hear that the agency says that this is how they deal with us when I know and my tribe knows firsthand they haven't even responded to an MOA that we wrote in draft form for them to comment on and get back to us.

In closing, sir, thank you very much for this opportunity. If you have any questions on the information I have presented, I would be glad to answer them.

Thank you.

The CHAIRMAN. I thank you very much, Mr. Jones.

[Prepared statement of Mr. Jones appears in appendix.]

The CHAIRMAN. May I now recognize Mr. Arterberry.

STATEMENT OF JIMMY ARTERBERRY, TRIBAL AND HISTORIC PRESERVATION OFFICER, COMANCHE NATION, MEDICINE PARK, OK

Mr. ARTERBERRY. Mr. Chairman, Mr. Vice Chairman, [Native words.]. Greetings, and thank you for an opportunity to address the committee on the issues of protecting our sacred places.

I will keep my comments short, because you have my prepared testimony before you, which I'd like to be entered into the record.

The CHAIRMAN. I can assure all of you that your prepared statements will be made part of the record.

Mr. ARTERBERRY. Thank you.

I'm going to address specifically the Corps of Engineers in a project that occurred in the State of Texas within the Galveston District. We received consultation letters after the fact. Our ancestors were removed from a cemetery that had been identified by Corps officials in 1982. In 2001, four of our ancestors were removed. In an agreement with the Advisory Council and the State historic preservation officer and upon the insistence upon the historic commission, 80 more individuals were removed before we were contacted. This site is on private property, DuPont Corporation, and DuPont Corporation took the initiative to insist that tribal consultation occur.

When we received the letter in October 2001, a meeting was arranged that would take place in February 2002. When we met there in Victoria County, Victoria, Texas, at the DuPont facility, the Corps of Engineers had already had a draft proposal of the analyses that they wished to perform on our ancestors. We had no input in the entire process at that point. We should have been in-

volved and we should have been notified from the very moment that they made the decision to disrupt our burial sites.

I speak of this from a personal nature. My grandfather's grave was removed in 1958 when over 800 burials from this cemetery were moved to over six locations. All of our burials are sacred. We deserve the same right to rest in peace as all of mankind, so we maintain that the Corps has a responsibility to all of our peoples to consult prior to any activities that involve the desecration and looting and studies that are performed.

When a profession such as archeology has an authority over a particular race of people, then we have a problem. In this case, it is a Federal policy, so therefore it becomes a racist Federal policy. Archaeologists should be used in a technical capacity, not as an authority over our people, but as a service to the people. I propose that archaeologists be held in that capacity and we should not be subordinate to any State office because our relationship is government-to-government. We are nations within a nation. Based on that sovereignty, we have the right to protect our dead and buried as well as our living.

That is why I am here today—to bring you the words of the Comanche people and to ask that you assist us in honoring the rights of our ancestors and aiding us in protecting all of our sacred places.

Again, thank you for the opportunity to speak.

The CHAIRMAN. I thank you very much, Mr. Arterberry.

[Prepared statement of Mr. Arterberry appears in appendix.]

The CHAIRMAN. Now may I call upon Ms. Sisk-Franco.

STATEMENT OF CALEEN SISK-FRANCO, WINNEMEM WINTU TRIBE, REDDING, CA, ACCOMPANIED BY MARK FRANCO, WINNEMEM WINTU TRIBE, REDDING, CA

Ms. SISK-FRANCO. Thank you, Mr. Chairman, Vice Chairman. [Native words] Sisk-Franco. I am here representing my people. My grandmother has testified before the committee before, Florence Jones. She's the leader of our tribe, and I am second in command.

We are a historic tribe from California, northern California around Lake Shasta, Mount Shasta. Our river runs from Mount Shasta through the lake at this point in time.

We were 14,000 in number at the turn of the century when California became a State. In the 1900's there was less than 400 Winnemem Wintu left, my grandma and her mother being those who made it through; yet, our ceremonies and our teachings continued.

At that time, our leader sent a letter to Washington asking for relief of the situation in California in 1889. [Native words] sent the first petition asking for justice for the Wintu, wondering what happened to our treaty that had been signed in 1851.

The BIA sent out special agents and allocated allotment lands to our people, which then in 1941 they removed our burial sites from the river because of the dam that was coming in and bought a piece of land in Central Valley and put it into trust to remove our burials to. Our people went out and helped them to identify the burial sites, to remove their family members to this new site that is held in trust today, and we still utilize this site today to bury our people.

At that time, we thought that we were a tribe in the view of the United States Government. Our allotment lands went under the lake. Our sacred sites went under the lake. We have 23 miles of river left, and of that 23 miles we have been taught where the sacred sites are. We still utilize those. We have the traditional practices there that we're teaching to our children at this very time. These are traditional cultural properties on the river.

But we're wondering about the historic tribes of California and these consultations that you talk about and this Native Graves Protection Act and the Historic Preservation Act. How do they apply to us, since we've fallen in a clerical glitch with the BIA, who can't seem to find that they hold land in trust for our people? And we are not consulted with. The U.S. Forestry is probably the only one who does consult with us. We have permits for our sacred sites that are ceremonial grounds that are given by the U.S. Forestry. We hold eagle permits from U.S. Fish and Game to practice our traditions. Yet, when it comes to the building and construction of dams, roads, bridges, that we are not consulted with. We are the last to know.

At this present time there is a bridge being constructed on the McCloud River to replace an old bridge, and it is said that that bridge has no cultural impact within 300 feet of the new construction, but the design for that new construction has not even been set. But it has already been signed off, and that bridge will run through a burial site that we have proof of that burial site. It has been studied by Forestry. And it will also endanger one of our traditional areas that we use right now for our children's training.

We wonder what rights we do have. We're not informed, as many of the other tribes. We don't have a historic preservation office. We have no funding. We are a traditional group of people who only believe in our own tradition. We have no churches, other outside of our traditions. We don't belong to any Methodist, Presbyterians, or any other church-based faiths. We are only Winnemem and we believe in the Winnemem way.

The proposed raising of Lake Shasta, at this time we don't know what the process is, how far they have gone, what studies they have made; however, we are aware that the lake is going to be raised or is intended to be raised. This is a little more information than we knew the first time that they put the lake on top of our people and moved us out and only gave us a burial site—didn't even give us land to live on. But we were appreciative of the land that we were given for our burials, and we continue to use those, but they can't do it again. It will cover at least three or four more miles of our river that we use now, that our sacred sites are the heart of our people. We used to be salmon people. No more salmon run up our river. We try to take the salmon below the dam and we get in trouble. But all of those things purify the water. Our relationship to those things help the land survive.

When the Forestry comes in and says we cannot clear the pine trees out of our oak grove because that's a natural succession, we have to say, "If it were a natural succession, we would still be living here and the pine trees would not be encroaching because we are part of the forest."

My Grams says there was no wilderness. This was our home. This is not a wild river. This is our home, unless we are wild Indians still.

I leave that to you to help us fix that. The Army Corps of Engineers is going to be coming in, if they are not already in, making plans without consulting. You know, the consulting, I have to say also, is that on the bridges that we have told the Forestry about our medicine plants, like the grape vine that we use for medicine, that were, you know, probably eight to ten inches in diameter, have been growing for a long, long time, they came in and cut all of them to put a new bridge in, and they are going to give us the sprouts. And where do we want them planted? These ones are this big now. Where do we want them planted? They've grown them from the seeds of the grape vine that was there.

These are the disheartening things that we are dealing with. It hurts my people. It hurts my Grams and it takes away our teachings to our children. They don't seem to listen. The Native American specialists that even the BLM and the U.S. Forestry have, they don't have any power. They seem to understand, they seem to want to listen, but a lot of times the U.S. Forestry subcontracts out, and when they subcontract out to either loggers or bridge builders or whoever they are, they must not read the reports very well. The logging industry cut four of our sugar pine grove in a very sacred site, and they were sorry, but they didn't know, they're just the contractors. So I encourage that this looks at subcontractors and what are their parameters of subcontractors, what are they held accountable for.

It is the same as with the bridge. We have tar dripping into our stream. The water trucks drive in and they dump diesel into the stream bed. All of the bugs that help purify the water below that bridge are dead. They no longer do the job. That water runs into Lake Shasta. Lake Shasta provides the water all down in southern California, all the way down the valley. This continues. Not only us are affected. The people of California are going to be affected, as well, in due time.

My Grams couldn't be here. She's 95 years old. She probably won't be able to travel out any more, but one of the things I have to say is that the U.S. Forestry do come to her house and meet and talk with her about, you know, the problems of the sites that are up there, because that is where we live. That is our land. Even though now it is owned by many other people, we still travel there.

I would like to close in saying that for California the historic tribes, I'm sure that we're not the only one in California with this situation, and I'm wondering how these acts of Congress to protect the tribal people is going to include us. How are we going to have our rights protected? Aren't we deserving of rights?

Since 1889 our leaders have asked: Is there any justice for the Wintu? We're still asking that today. We're asking that of the Bureau. Is there any justice? And if there isn't, let us know. Let us know.

Thank you.

The CHAIRMAN. I thank you very much, Ms. Sisk-Franco.

[Prepared statement of Ms. Sisk-Franco appears in appendix.]

The CHAIRMAN. May I now call upon Mr. Selestewa.

STATEMENT OF LEONARD A. SELESTEWA, VILLAGE OF LOWER MOENCOPI, TUBA CITY, AZ, ACCOMPANIED BY ELLIOTT SELESTEWA AND GILBERT NASEYOWMA

Mr. LEONARD SELESTEWA. Good afternoon. My name is Leonard Selestewa. I'm a Hopi farmer from the village of Moencopi on the Hopi Reservation on northern Arizona. I will try to make an attempt to take you there through large photos, if I may.

I want to thank the committee—well, members of the committee. I'm beginning to think you're the only committee. I'm hoping that our words can be heard by all. I thank you for giving us the opportunity to appear in front of this committee. We are deeply appreciative, because the matter that we have come here to address is so important for us, and that in this case is water.

I appear here today with my father, Elliott Selestewa, and my uncle, Gilbert Naseyowma, on behalf of agricultural allottees of Moencopi, in particular, whose livelihood and way of life has revolved around water for hundreds of years.

I will try to address four subjects in my brief remarks: The meaning of water; the trust responsibility of the Federal Government to protect the Hopi people; and the failure of government agencies—in particular the Office of Surface Mining and the Army Corps of Engineers—and the loss that we, the Hopi farmers, have felt for 3 decades.

Before you are materials that I have submitted. My remarks will be on the surface water issue, although there are other materials there in groundwater which may or will be heard in July when the Interior is up before this committee.

It is no accident that the Hopi people came to settle and live on the Black Mesa in the high desert country of northern Arizona. Upon their emergence to this new fourth world, the Hopi were directed by their deity, Masaw, to live on Black Mesa, which is shaped like a hand pointed downward from northeast to southwest. Black Mesa, itself, is thus sacred to the Hopi people.

If you can see the outline of a hand, that is where we lived, Senator. Masaw gave us three things to live a simple yet sustainable life, and a very responsible one, at that. It was a bag of seeds, corn seeds; a planting stick; and a gourd of water. Thus, the Hopi culture and the religion is one of stewardship, a responsibility to take care of Mother Earth and her life's blood, water.

Water is a sacred part of this covenant, of the stewardship the Hopi people made with the deity Masaw. Yes, water is, of course, a necessity, especially in the desert, but, just as important, it is sacred. It gives life to Mother corn. Corn is not only a staple. Corn is the first thing that touches a baby's lips and the last thing upon which a man or a woman is laid to rest when they die.

I know that as members of the Committee on Indian Affairs you are well aware of the trust responsibility the Federal Government undertook years ago to protect the welfare of Indian people, so I will not belabor the point. In this instance, the Government's responsibilities translates to an obligation to minimize the impact of coal mining on Black Mesa and the flow of water to the Moencopi farmers.

We are here today, Senators, to say to you that there has been a failure of Government agencies charged with the responsibility to

protect the scarce surface waters of Black Mesa—the Office of Surface Mining, the Reclamation Enforcement, and the United States Army Corps of Engineers and the United States EPA, as well. Over 3 decades that the Peabody Coal Company has been mining coal on Black Mesa, literally hundreds of water impoundments and dams have been built. These impoundments hold back millions of gallons of water that would have flowed down the Moencopi wash from the higher elevations of the Black Mesa to the farmer of Moencopi.

I would just like to point out that this is not literally entirely a farming issue. Much of this water has been wasted by being allowed to evaporate into the dry desert air with these permanent impoundments. The Hopi farmers at Moencopi have been denied this precious and sacred source.

In testimony before the Office of Surface Mining a few years ago, one of the agent's hydrologists, Steve Parsons, stated unequivocally that impoundments have significantly impacted the water flow. We would request, as I pointed out earlier, that this is part of the binded packet that we have submitted for the record. Nevertheless, the Office of Surface Mining issued a mine permit without studying the mine's impact on surface water flows to downstream users, including the farmers of Moencopi.

To this day, the Office of Surface Mining has taken no action to ensure that coal mining activities on Black Mesa are conducted in a way that minimizes its impacts of surface flows. Instead, gentlemen, Office of Surface informed us that the management of impoundments as they impact surface water flow outside the mine lease area is the responsibility of the U.S. Army Corps of Engineers.

Of course, water does not stop flowing at these boundaries. The farmers of Moencopi live outside the boundary of Peabody's mining lease, but they have lost the water that used to flow through the Moencopi wash—water so precious and scarce in our homeland.

When we spoke with representatives of the U.S. Army Corps of Engineers, we were told that the management of the impoundments built in connection with mining activities was the responsibility of Office of the Surface Mining. When we got to this point in our search for environmental justice, you have two agencies pointing the finger at each other.

The Army Corps allowed Peabody to build water impoundments and to operate under what I term a "generic, nationwide permit number 21," rather than an individual permit designed to address the unique circumstances of surface water flow in the high desert of Black Mesa. Included in your packet is also reference to the nationwide permit.

The Hopi Tribal Council expressed its concern about the issuance of a nationwide permit on at least two occasions. They are also in your packet. But even the generic, nationwide permit requires Peabody to take all practical steps to minimize impacts of mining activities of pre-construction flows and the aquatic system that depends on it. These are mentioned in paragraphs 21 and 22. But for decades Peabody has been allowed to maintain hundreds of impoundments, holding millions of gallons of water, without ever re-

leasing it after treating it, which is an option, as the Army Corps permit and the EPA 401 certification letter requires.

In other words, the nationwide permit has been continuously violated and has never been enforced. I believe, gentlemen, that enforcement and consultation go hand in hand. Thus, the matter of the Office of Surface Mining nor the Army Corps, nor the EPA, for that matter, has accepted responsibility for the impacts of the water impoundments on the farmers of Moencopi. The failure of any agency to accept responsibility to protect water flows has, of course, been of great concern to the Hopi farmers who hold agricultural allotments. I think they also refer to private property, private landowners.

The impacts of Black Mesa mine on the flow of surface water has also been a serious concern for the U.S. Fish and Wildlife Service. In 1993, the U.S. Fish and Wildlife Service submitted a letter to the U.S. Army Corps expressing its concerns. We submit that copy along with the binded material for the record.

As far as we know, the concerns expressed by the U.S. Fish and Wildlife Service, as well as the concerns of the Hopi people, have been left unaddressed.

I show you now for the record the headwaters of Black Mesa, the wash, itself. This was taken in the early 1970's when the mining first began, and obviously this is a far-off shot of our water. I refer to this not as a river. As you all know, around here we're talking about big rivers, but it is a perennial stream and it means a lot to us. Back then it flowed. This is an aerial photo of the wash, itself, roughly 10 to 15 feet wide of flow. I didn't notice it then when we enlarged this photo, but here are ruins of our ancestors along this perennial stream.

This is a photo taken before the mining began. You know, this perennial stream flowed like this all the time, year round.

In closing, I would like to submit a photo I took of my son, 5, maybe a few days ago. This is all that's left in there. But what you see in this photo prior to leaving our homeland to come this far, this water is now gone. It will not return until late October or November. But we are in our peak season of our sacred farming of our sacred corn with this water.

I was hoping that maybe we could hear from my father as an elder in respect to you, yourself, Mr. Inouye, but maybe we can ask them—you may ask them a question of what they remember of the water before in their youth.

So I leave this committee with a question. Why? Why has there been a failure of responsibility and enforcement? Why has the Government failed to protect the Hopi people's most precious and sacred resource, water? Why has the Government allowed scarce trust resources to be wasted? Why has there not even been a study of the impacts of the impoundments on the Hopi people?

We ask this committee for help in finding out the answer to this question why, and I invite each member of the committee to visit Moencopi to see for yourself.

Again, I thank you for the opportunity to speak before this panel, the committee. [Native word.]

The CHAIRMAN. I thank you very much, Mr. Selestewa.

[Prepared statement of Mr. Selestewa appears in appendix.]

The CHAIRMAN. Your father, having traveled a long distance to be here with us, if you wish to address the committee, please come forward.

Mr. ELLIOTT SELESTEWA. Good morning, Mr. Chairman and Vice Chairman and the committee. Well, I live in a village of Moencopi for all my life, and I used to seeing the water flow year long, you know. I never dries up. For some reason, it went away, you know, and I was wondering why it did that. I guess I want to say that it is because of the Peabody that's building dams up there, so many that it is taking all of our water, you know.

I thought for me I thought it would never dry up, you know. During my boyhood, we used to swim in it, and there was always plenty of water. Now I'm a farmer, myself, and a rancher, and I still go through my old traditional way of raising corn, and we need that water, you know.

I want to ask you to help in some way that we can tell Peabody to release those water dams up there so we can have a natural flow of water again. But, of course, it is going to have to be cleaned and released.

This time of the year especially in June and July we really need that water for our plants, you know, because, like I'm going to say, we living in the desert and it is very hard to get water.

I just want to say that we need help from the committee if there is any way that we can get the water back to running again.

Thank you.

The CHAIRMAN. Thank you very much.

Ms. Yellow Bird, Mr. Jones, Mr. Arterberry, Ms. Sisk-Franco, and Mr. Selestewa, as chairman of the Senate Committee on Indian Affairs, as chairman of the Senate Subcommittee on Defense Appropriations, I pledge to you that your words and messages will be transmitted to the appropriate agencies, and in my capacity I will most respectfully request that they respond to them. You can be assured that I will receive a response. Upon receipt of such response, we will act thereupon.

With that assurance, I thank you all very much for your contributions this morning. Thank you.

Mr. FRANCO. Can I ask a question, please, Mr. Inouye?

The CHAIRMAN. Sure.

Mr. FRANCO. I was told that I was also going to be able to speak to the raising of Shasta Dam. Is it because we are unrecognized people that my statement is not included in this? I respect you very much, sir. I've met with you—

The CHAIRMAN. If you wish to, you may speak right now, because I recognized you when I called upon the panel but no one asked—all it says here was "accompanied by."

Mr. FRANCO. Well, if that's the way that you understood it, I don't wish to impose.

The CHAIRMAN. Please sit down. I sit here for hours. I am willing to sit here for hours, so please sit and testify.

Mr. FRANCO. Thank you very much.

The CHAIRMAN. Never let it be said that I have denied any Native American from testifying before this committee, because I take my work very, very seriously.

Mr. FRANCO. Sir, that was not my intent.

The CHAIRMAN. Yes, sir; please proceed.

**STATEMENT OF MARK FRANCO, WINNEMEM WINTU TRIBE,
REDDING, CA**

Mr. FRANCO. My name is [Native word.] In the Winnemem language that means I am the one who talks back. I am here because my wife is the spiritual leader now of our people. In each of our communities in the Winnemem bands there is the spiritual and there is the enforcement side, for lack of better words. My duty with the tribe is to speak as the enforcement person.

We came here today to speak about Shasta Dam. We were invited as unrecognized people to speak before these committees at this one only. We understand that you are going to be hearing other issues that affect us, but we were asked to only speak at this one, and so I wish to talk about Shasta Dam.

We've met with the Department of Defense people, the people from the Army Corps of Engineers, and at the time that we met with them we didn't know that they had anything to do with the Shasta Dam raising because, as unrecognized people and as people who are kept out of the loop of communication between Indian tribes and the Government, we didn't know that the Shasta Dam issue was even going to be something that was going to impact us at such a great level until we went up there to do a site visit on a bridge. At the time we went up there to talk to the bridge the United States Forest Service told us that they didn't know who the lead agency was on directing the raising of this bridge. I told them, "Why would you need to raise this bridge?" They told me it was unsafe, that they needed to change the contour of the road to facilitate logging trucks.

I said, "Oh, well, I can understand that. Logging is a pretty good industry. I've cut trees." I said, "How are you going to raise this bridge?" And they said, "We're going to raise it so it will be at least ten feet above the level of the bottom of this bridge."

I'm not a very smart person, but I realize that if you raise a bridge ten feet there must be some reason for that. I asked them, "Why are you raising this bridge so high?" The engineer on site told me, "Well, it has to be at least four feet above the high water mark of the lake." I told them, "This is a river here." Again, I'm not a very smart man, but when you're raising water that is now probably 40 feet above the level of the water that is there, that indicates that somebody is going to be stopping water up somewhere downstream.

So we asked. We contacted the Federal Highways Administration. We contacted the Department of Defense, Army Corps of Engineers. Nobody would tell us anything. Was that because we are unrecognized? Was that because they don't consider our issues as important? So we asked as private citizens, and we still received no answer.

Shortly after that the College of the Siskus, their geology department contacted me and said that they had some remains that they needed to return but they didn't want to go through the NAGPRA process. I said, "Well, that's good because we're not covered through NAGPRA anyway. What do you have?" They said, "Well, we're not sure because we've never opened it." I asked for the bless-

ings of our leaders and I went up there to look at what was in this NAGPRA return and it was a skull and it was some artifacts. There was an original site record, an archeological site record in the box with them that indicated that they were taken from the McCloud River approximately 100 feet from the existing bridge.

I asked the Forest Service, "Did you know about this," and they denied it. So at that point we started talking. "Well, there's a problem here. You can't put this bridge in." And then it became, "Well, they're going to do a dam, and the dam is going to raise the water, and we really do need to move this."

In checking on it, the 106 process had already been completed and we had never been consulted on it, and the 106 process that was signed off by the SHPO Office—the State Historic Preservation Office—indicated that there was nothing within 300 feet of the dam, and it had signed off, and Federal Highways and everybody and their uncle started working on the plans to raise this dam.

Shasta Dam cannot be raised to the level that the Government wants to raise it. Yes, it is fine and dandy. Everybody needs water. Learn how to conserve. There's enough water there if you conserve. You don't have to spend all your water on golf courses and swimming pools in central California and southern California.

Shasta Dam does not need to be raised at the expense of the Winnemem, because that's who it comes down to. Our culture has been destroyed because of the original raising of the dam. Allotment lands, as my wife spoke to, were issued in 1917, although in 1913 the Government knew that they were going to put a dam in on the McCloud and Pitt River where they join, but they gave us allotment lands in that area that was going to be inundated, anyway.

Burial sites were removed, and, just as they were talking about, yes, we told them where the burial sites were that would be impacted by the original dam. Well, we don't tell the Government everything, because if you tell the Government where everything is it will be destroyed. Now we're faced in a situation where they deny that there are even any of these burials there, and now they deny that we are even Indian people to deal with those burials.

So I am here to ask you, because this committee—and I am actually just speaking with you, Senator—we've talked with you before and you have been very, very understanding, and my apologies to you for coming here and sounding like I was a spoiled child. But I am asking you, I am begging you to help us.

My daughter and my son are here. My daughter can't see the sites that are already being destroyed and are in danger of being destroyed until she hits at least 16. That dam will be here before that. We have asked for help with our recognition. We've asked for help from the National Historic Preservation Office. We've asked for help from all of these different agencies, and we can't get the help as Indian people because we are not recognized as Indian people. We don't fall into the categories of being able to access the funding to do the projects that these agencies talk about, to get people to come in and help you preserve your area. We're not the recognized people.

So I ask for your assistance and I ask the Army Corps, because they have been really good with us. I mean, some people have rela-

tionships with them and some people don't, but the Army Corps has been really good with us since they know who we are. It really means a lot to us, because we travel here on our own pocket, and to come in and have the people from the Army Corps come up and say, "It's good to see you again. We liked what you said the last time. We took to heart what you talked about," it's good to see that, and we wish that the rest of the agencies from the Department of Interior, Bureau of Indian Affairs, on down could do like these folks from the Department of Defense. At least they looked at us. At least they recognized us.

Again, sir, my apologies to you. I meant no disrespect. I carry this eagle fan to let you know that my words are true, and I carry this eagle fan in respect for the elders who sent me here, and I respect you. [Native word.]

The CHAIRMAN. Thank you very much, Mr. Franco. I carry this because my words are good, too.

The next panel consists of the chairperson of the Kaho'olawa Island Reserve Commission of Hawaii, Colette Machado; and from Kaunakakai, Molochai, HI, Dr. Noa Emmett Aluli.

It has been a long day, but welcome. Aloha.

**STATEMENT OF COLETTE Y. MACHADO, CHAIRPERSON,
KAHO'OLAWA ISLAND RESERVE COMMISSION, WAILUKU, HI**

Ms. MACHADO. Aloha, Senator. I want to thank the committee and yourself for the invitation to participate in this very important discussion on sacred sites.

I have been very moved by the presenters that have preceded Dr. Aluli and I, and I come to you with a heavy heart. The Hawaiian word for burden is kaumaha. As a Native Hawaiian and someone that has been active in protecting archeological sites and also an elected official as a member of the Office of Hawaiian Affairs, I come and I listen after decades of articulation, decades of change, knowing who we are as a people, I come today and I am wondering where we are going to be in the next generation, which is about 20 years from now.

Like many indigenous, sacred places, Kaho'olawe is impacted by the policies and actions of the Department of Defense. We support the Sacred Lands Protection Coalition and encourage the continued oversight hearings by this committee.

Kaho'olawe is the smallest of eight major Hawaiian islands, located just seven miles off the coast of Maui. The island has a rich mythology and a long history of cultural use and religious practices. This is reflected in the profound discovery of 500 archeological sites and 2,000 features. Kaho'olawe, whose ancient name is Kanaloa, is the only island name for a major god. It was a place well known among our people for continuous religious practices from 900 A.D. through 1890. The island was taken by U.S. military in 1941 for use as a bombing range during World War II. In 1953, President Eisenhower signed Executive Order 10436 transferring the island to the U.S. Navy.

I would like to say Aloha to Senator Akaka. I am honored that you have taken the time to hear Emmett and I this morning.

A second part that I am very burdened about is this issue of recognition. I believe, through the movements and the continued ef-

forts of Kaho'olawe and the military's misuse of the island and our efforts under cleanup, that we have continued to try to restore a sacred island and to give rebirth to it, to its people. But as I listened to my brother from California and his cries out to being unrecognized, I begin to wonder what would happen to our Native Hawaiians if we are unsuccessful in getting that recognition from Congress during this session.

For the past 50 years Kaho'olawe was used as a target range for ship-to-shore shelling, aerial bombardment, torpedo launching, and artillery maneuvers by the United States and its allies. Nearly every type of conventional, non-nuclear munitions in the U.S. arsenal was fired at Kanaloa. In 1965, the Navy simulated an atomic detonation that was seen and felt by its closest neighbor located seven miles away on Maui. This detonation blasted through the island substrate such that the resulting crater is filled with seawater. While the island's ancient significance was known or respected by many of our Native people, military training has resulted in the destruction of sites and degradation of the cultural landscape.

Since 1976, Native Hawaiians have begun protesting, and it was Dr. Aluli who filed a civil suit against the military protesting First Amendment rights of freedom of religion and access, and therefore to protect Kaho'olawe Ohana, led by many of us, and the general public protested to end the desecration of Kaho'olawe.

The Federal Court sanctioned a consent decree in 1980 that required the Navy to meet the requirements of existing environmental and historic preservation law and to provide monthly access to the island by the Native plaintiffs. The PKO's role as [Native words] or steward of the island was acknowledged in the court order consent decree. These were the early stages.

In 1990, the President of the United States issued a directive for the cessation of the bombing. In 1992, Congress received the final report of the Congressional Appointment Kaho'olawe Island Conveyance Commission. The report confirmed the rich cultural history and sacred nature of the island and recommended its return to the State of Hawaii.

In 1993, as part of the Defense Appropriation Act, in recognition of the State/Federal relationship and the historic cultural significance of Kaho'olawe, Congress directed the Navy to return the island to the State of Hawaii and to undertake a 10-year program of environmental restoration and remediation in coordination with the State.

In 1993, the State of Hawaii Legislature enacted H.R.S. 16, which established the Kaho'olawe Island Reserve and the Kaho'olawe Island Reserve Commission to manage it. The reserve encompasses the entire island and 90 square miles of ocean surrounding it. In recognition of the cultural importance of Kaho'olawe, State law prohibits any commercial use of the reserve but provides for the protection and perpetuation of Native Hawaiian practices relating to cultural religious and subsistence purposes. Other allowed uses under State law include ecological restoration, historic site preservation, and education. The law contains a unique provision which allows for the transfer of the entire island

upon recognition of a Native Hawaiian sovereign entity by Congress and the State of Hawaii.

I think my time is up, but I'm going to try to summarize very quickly. In process of the cleanup we have done several agreements and without your help, Senator, I believe we would not have been able to achieve half of what we have successfully met.

In the authorization in 1993, the Navy was required to provide what we call a "cultural protocol" to respect and protect the sites on the island. In addition, the Navy was required to hire numerous archaeologists to provide adequate assessment and recordation of all sites to be impacted by the cleanup operations.

As I listened in the back I realized that MOUs are here today without enforcement. There's the issue of adequate consultation. There's a continued legal review of whether or not the MOU's standards are being met. These are just consistently areas that the State has undertaken with the Protect Kaho'olawe Ohana. You really need to have that type of status. If not—excuse me, Senator—you can get jerked around. In this area, we have been able to be successful.

In conclusion, I want to outline some quick successes. We have been able to return to local control and the initiative of environmental and cultural restoration—and that's a success—recognition of our cultural protocol, both with the informal agreements between the State and Navy and in actual contract provisions with Government vendors, required cultural orientation to all of the contract hires—enthusiastic, positive response by the workers.

We have found that 110 percent of these individuals that participated in the State's mandatory cultural orientation enjoyed it. They became totally aware and immediately sensitized.

We had one incident during the cleanup where the contractor even offered a reward to gather more information on this one particular activity.

There are still problems and challenges that we will continue to meet. We expect—even with the expected shortfall of the cleanup from the standards agreement with the State and the Navy in 1994, we are concerned that these things—we tried to address it as best we could, and I believe we got a good product. It's because we were recognized by the State Legislature, we were created under the State of Hawaii as a Commission. We created these boundary areas that protected the reserve. In that legislation, this island, like its people, who has suffered generations after generations, is now looking to be sovereign or looking to have that identity, and this entire island and the reserve would become part of that legacy.

Before I close I just want to end by just simply saying a short vision the Commission worked at. I just want to review it. The vision statement that was prepared by our consultants and members of our Commission speaks as:

The body of Kaho'olawe is restored. Forest and shrub lands of native plants and Ka po'e o Hawai'i clothes its slopes and valleys. Pristine ocean waters and healthy reef ecosystems are the foundation that supports and surrounds the island. Kanaka Maoli, the people of Hawaii, care for the land in a manner which recognizes the island and ocean of Kaho'olawe as the living spiritual entity. Kaho'olawe is a pu'u honua where Native Hawaiian cultural practices can flourish. The people of

Kaho'olawe is in a crossroads of the past and future generations from which the Native Hawaiian lifestyle spreads throughout the islands.

Thank you very much.

You know, Senator, I'm not a cry-baby. I have been described as someone as tough as nails, but I was very, very moved in the similarities with the other Native groups throughout this great Nation, and more so with our brother from California, as we continue to raise our voices, Native Hawaiians, to be acknowledged as a race of people.

Thank you very much.

The CHAIRMAN. I thank you very much, Colette Machado.

[Prepared statement of Ms. Machado appears in appendix.]

The CHAIRMAN. In order to complete your statement, it should be noted that the Government of the United States appropriated \$400 million for the restoration of this island, so we did not just pass the law.

Dr. Aluli.

STATEMENT OF NOA EMMETT ALULI, KAUNAKAKAI, HI

Mr. ALULI. [Native words] Chairperson Inouye and members of the Senate Indian Affairs Committee and Senator Akaka. For the record, my name is Noa Emmett Aluli. I'm a physician in primary care on the Hawaiian Island of Molokai. I'm also the medical executive director of our only hospital, Molokai General Hospital. I am one of the founding leaders of the Protect Kaho'olawe Ohana and fund. I am the past vice chair of the Kaho'olawe Island Conveyance Commission, and also past chair of the Kaho'olawe Island Reserve Commission.

Thank you for the opportunity to testify this morning on behalf of protection of wahi pana, or Hawaiian sacred places. I would like to share the thoughts of Hilo historian Edward Kanaheli, the late husband of Master Pumahula, Poalani Kanakaoli on wahi pana, or Hawaiian sacred places, to more fully describe the significance and meaning of such places to Native Hawaiians, and I will paraphrase his thoughts.

Sacred places of Hawaii were treated with great reverence and respect. These are places believed to have manao or spiritual power for Native Hawaiians. Place tells us who we are and who is our extended family. Place gives us our history and the history of our ancestors. Place gives us a sense of well-being.

A wahi pana is a place which links Hawaiians to our past and our future. Our ancestors honored the earth and life as divine gifts of the gods, and fishing and farming wahi pana were respected. Their activities never encouraged or allowed over-use of the resources. To do so would dishonor the gods. "The Earth must not be desecrated" is a Native Hawaiian value.

The inventory of sacred places in Hawaii include the dwelling places of the gods, the dwelling places of legendary kahuna, temples, shrines, as well as selected observation points, cliffs, mounds, mountains, weather phenomena, forests, volcanoes, lava tubes, [Native words] or places of refuge, and, of course, our burial sites. All wahi pana need our protection and our respect, not only for the historical significance but also for their human significance.

As Colette has articulated quite emotionally and well, today the Hawaiian island of Kaho'olawe is helping our present generation understand the importance of respecting and ordering our traditional wahi pana. As you know, for 18 years, beginning in 1976, the Protect Kaho'olawe Ohana led the Hawaiian and general public protest to end the desecration and bombing of Kaho'olawe. Ohana members persevered to oversee the island's cultural and natural resources, despite personal and collective sacrifices.

In 1980, the role of the Protect Kaho'olawe Ohana as the [Native words] or steward of the island was acknowledged in the court ordered consent decree with the Navy. The island was then listed. The entire island was listed as a historic property on the National Register of Historic Places. We were allowed access to the island for religious, cultural, educational, and scientific activities. Since then, the Ohana has taken over 14,000 visitors to Kaho'olawe.

Our treasured kapuna, elders, and [Native word] children from every island joined in the rediscovery of our sacred island. We rededicate our ancestors' shrines and temples and places to conduct religious ceremonies, we clear access routes to these places, and we care for and protect burial sites.

The Ohana conducts the annual celebration of [Native word] or harvest ceremonies to God Loono, god of agriculture, across the island every November and January. Through the course of this spiritual journey, an entirely new image of Kaho'olawe as a sacred island has emerged. According to Native Hawaiian kapuna the island was originally named Kanaloa, the name of the Hawaiian god of the ocean. Hawaiian ancestors respected the island as a physical manifestation of Kanaloa. It is the only island in the Pacific named for the major god.

It is also named [Native words] that can be translated as "The Shining Birth Kanal of Kanaloa," or "The Refuge of Kanaloa," or as "The Southern Beacon of Kanaloa." Both names link to the island's role as a traditional center for training of celestial navigation between Tahiti and Hawaii.

Finally, in October George Bush directed then-Secretary of the Navy [sic] Richard Cheney to discontinue use of the island for bombing and target practice, and I think that's important to mention because, Senators, you have been quite good in making this a very strong, bipartisan kind of endeavor.

Finally, in November 1993, Congress passed and President Bill Clinton signed an act which recognized Kaho'olawe as a national culture treasure and permanently stopped the use of Kaho'olawe as a military training.

As Colette had mentioned, in 1994 the U.S. Navy formally returned the island to the State of Hawaii.

I mention all this again because this experience with Kaho'olawe has led us to understand the importance of expanding the assessment of wahi pana to include our activities as Native Hawaiians to provide stewardship over and practice our religion in connection with these places honored by our ancestors as sacred to our deities. Thus, cultural and environmental impact assessments and studies must include but not be limited to ancestral relationships of Native Hawaiians; to wahi pana; two, necessity of access to wahi pana in order the fulfill responsibilities of stewardship; three, the impor-

tance of sustaining the integrity of natural resources as part of the integrity of a sacred site; four, the importance of sustaining the quality of experience, including view planes and quiet in and around the wahi pani; five, whether proposed uses would generate a change in the condition, the integrity, the use, the function, the alignments, the ownership, the boundaries, and access to or change in the quality of the experience.

In the course of conducting a cultural impact assessment and study, it is necessary to conduct interviews with families and practitioners who have a relationship with and take the responsibility for the wahi pana or sacred place. These families and practitioners must also be parties to any joint use agreements or memoranda of understanding that may guide the future use of a particular sacred place. Such agreements must allow the families and cultural practitioners to have access to the wahi pana in order to care for, monitor, protect, and sustain a relationship with the sacred place.

I am hopeful that these suggestions can be considered in strengthening the protection of sacred places in Federal law.

Finally, these hearings are timely in that the Smithsonian Asian Pacific American Program is presenting, starting tomorrow, June 5, through September 2, the exhibit “Kaho’olawe: Rebirth of a Sacred Hawaiian Island” at the Arts and Industries Building at the National Mall. This comprehensive exhibit tells Kaho’olawe’s unique story from its legendary beginning to the current efforts of protection and revitalization, and we invite all of you to attend and visit our exhibit.

Finally, after the 18-year struggle to reclaim sacred Hawaiian land, Kaho’olawe has been recognized as an important national treasure for restoration and cultural reserve, and we thank both of you for this opportunity to fulfill the kapuna and their kapuna and their kapuna visions and work on sacred places, wahi pana.

Mahalo.

The CHAIRMAN. I thank you very much, Mr. Aluli.

[Prepared statement of Mr. Aluli appears in appendix.]

The CHAIRMAN. Next year title and control of this island will be transferred to the State of Hawaii and, more specifically, to the Ohana. Are you prepared to take over?

Mr. ALULI. We’re prepared. Mahalo.

The CHAIRMAN. Then the agreements that you speak of on rights to prayer and sacred grounds will be in your hands now.

Mr. ALULI. This is true, and we’re ready, but, you know, the reason for mentioning all this is, as Colette was saying, we are not formally recognized as a government, so, in lieu of all that, all the other areas where we have our sacred places should include those families as memorandums, those accesses, so that we can continue that work until such time.

The CHAIRMAN. Well, once the title has been conveyed to the State of Hawaii, it will be up to the State of Hawaii as to whether it will grant you full recognition. It is not up to us.

Mr. ALULI. I’m sorry, Senator. I was referring to the other areas, not just Kaho’olawe—other areas where military and Army Corps and eventually the other agencies that would come to hearings—National Parks—that have sacred sites.

The CHAIRMAN. We’re working on those, as you know.

Mr. ALULI. Correct.

The CHAIRMAN. So we are not ignoring that.

Mr. ALULI. So I would really like to kind of leave the program here for anybody, including some of us here who would like to just see the work of 18 years that have come to fruition in reestablishing the sacred place and the kinds of opportunities for us to continue those practices.

The CHAIRMAN. And we congratulate you, sir.

Mr. ALULI. Mahalo.

The CHAIRMAN. Senator Akaka.

STATEMENT OF HON. DANIEL K. AKAKA, U.S. SENATOR FROM HAWAII

Senator AKAKA. Thank you very much, Mr. Chairman. I want to commend you and our committee for holding this hearing to examine the protection of Native American sacred places as they are affected by Federal agencies. In particular, this hearing, as we all know, is focused on activities of the Department of Defense.

I also want to add my welcome to all the witnesses that are here and those from Hawaii that are here at this hearing. I want to recognize the efforts of Chairman Inouye to protect sacred sites of indigenous peoples throughout our country, particularly in this case in the cleanup and restoration of Kaho'olawe.

I thank Dr. Aluli and Trustee Machado and the rest of the witnesses again. Particularly I want to say mahalo to Chair Machado for the work you have been doing on Kaho'olawe. I also want to mention that Dr. Aluli has been one of the forerunners of getting Kaho'olawe back by your protests years ago with others in Hawaii. This all came together and is still coming together as we talk today. So mahalo and [Native words].

Mr. Chairman, may I proceed with questions?

The CHAIRMAN. Yes.

Senator AKAKA. Thank you.

Chair Machado, it is my understanding that the KIRC has been asked to reassess its priorities, given the Navy's determination that it will not be able to make the goals of the 1994 MOU, memorandum of understanding. What impact does this have on the uses and cultural activities planned for the island of Kaho'olawe?

Ms. MACHADO. You know, that's a really good question, and at one of our KIRC meetings we had gone round and round with the Navy on this issue, but because of the timeframe and because of the need to identify these key areas, we agreed to reduce the area of the cleanup by the areas as identified as tier one and tier two, so we've gotten more of a surface rather than subsurface. In our evaluation, it was okay with us. I think that Senator rates the real issue as, after the return it becomes the State's obligation and we will be pounding on the doors of our own State legislators and beginning to do lobbying to assure that certain work that was not completed will be then resolved in that capacity with that type of funding. If it was not for the funding from Congress, the largest ever appropriation to clean up a range, for our little island and for the people of Hawaii, if it was not for that appropriation we would not have been able to move so forward.

Perhaps in our zealous effort on the on-site or in the early stages we may have been over-demanding, if you want to call it that, in what we felt would be appropriate. So, in spite of us reducing the areas and our cultural access areas, we are confident that, even without the Navy and the cleanup, we will be able to still continue at that level without any reduced services in doing restoration, site stabilization, cultural education that we continue to provide jointly with the Protect Kaho'olawe Ohana, and with our volunteer program under the Kaho'olawe Island Reserve Commission.

Senator AKAKA. Thank you very much.

Ms. MACHADO. It's okay, and we've got to work harder at our State level to assure that we can continue to upkeep that obligation.

Senator AKAKA. Dr. Aluli, you testified about the necessity of incorporating additional factors into the Department's assessment of the significance and the use of Native Hawaiian sacred sites. What types of actions could be taken by the Department of Defense to incorporate an assessment of responsible stewardship by indigenous peoples of sacred sites?

Mr. ALULI. Senator, it was within the context of us learning that in order to be even consulted you had to have on the table a suit against the Navy, and you know how expensive that is, so it would behoove the military or the Federal agencies to kind of, like, look around to see who are the families or who are those practitioners who have this training, this obligation to kind of continue the so-called "practices" at these areas, and so that is a whole other level that they be considered also the experts, not just the anthropologists, the archaeologists, the historians, but there are people in the community who live and continue that responsibility for those sacred sites, and they should be major players and consultants with whatever kinds of plans are being projected or whatever kind of use is being ongoing at these areas. That's one of the recommendations. So that develops a whole new level of expertise or necessary consultations that need to exist.

Ms. MACHADO. Senator?

Senator AKAKA. Ms. Machado.

Ms. MACHADO. Just for the record, the Navy would have put on reserve \$65 million to accommodate potentially additional that might be discovered or somehow made itself available from the original appropriation. By the end of the return of Kaho'olawe to the State of Hawaii under the appropriation funding, the Kaho'olawe Island Reserve Commission would have in our State coffers \$21 million to continue the work, in addition to what we might be seeking from the legislature to provide ongoing cultural site stabilization and historical protection.

Mr. ALULI. Senator, if I might add, one of the more important burning questions for us in the Ohana—and I say us in the Ohana—is when will the Navy stop cleaning? Will it be on the 11th of November or will they start deploying out this year? That makes a major difference on how much more they can clean and how much closer to the MOU agreement that we've signed with them. There is that whole year of time that they start—either they're committed to end and start deploying off on November 11, 2003, or do they start deploying off now so that November 2003, they're off

the island? To me in the Ohana that's one of the burning questions that we need, and for me that's a whole year more work that we need to consider.

Senator AKAKA. Thank you for that question. We have been in touch with the Navy on that question and we'd like the Navy to work until the very end, but we'll be back with you on what else there may be to that.

The CHAIRMAN. Maybe I can help you. Under the agreement, the Navy will have to be out of the island by the deadline; therefore, they cannot do their work up until the 11th hour and leave on the 12th hour. However, the Navy will work as long as moneys last. After all, there's a limit of \$400 million. But I am certain that the Navy will do everything possible before it leaves. But I think the work will stop possibly 1 month before the final day. It will take about 1 month to vacate the island.

Senator AKAKA. [Native words] for you. Thank you very much for your [Native word], your thoughts, and for your testimony. Thank you very much.

Mr. LEONARD SELESTEWA. Excuse me, Mr. Chairman. May I approach the microphone while I'm already here? I brought my elder uncle a long way, and before we—

The CHAIRMAN. Before you do that, may I thank Ms. Machado and Dr. Aluli for their testimony this afternoon.

Ms. MACHADO. We are very grateful that the timing provided our presence here because of our exhibit.

The CHAIRMAN. And I can assure you that we will do everything possible to see that this project is carried out in the manner that it was intended.

Ms. MACHADO. Thank you.

The CHAIRMAN. Yes, sir?

Mr. LEONARD SELESTEWA. Before the remarks, your remarks were redirected at the panel, the hope was to have my uncle also be heard. I'd like 2 minutes of the panel's time for his testimony to be put into the record, please.

The CHAIRMAN. If he will come up and identify himself.

**STATEMENT OF GILBERT NASEYOWMA, VILLAGE OF LOWER
MOENCOPI, TUBA CITY, AZ**

Mr. NASEYOWMA. Thank you. My name is Gilbert Naseyowma and I'm from Moencopi, AZ. I'm here on behalf of Black Mesa. I was born and raised in Moencopi and I am 68 years old now and I remember when we were young. I was a sheep herder, and we would have sheep corrals up along the Moencopi wash, maybe between 15 to 10 miles both ways, and I remember how water used to flow when we were young. We would be watering our animals, domestic animals, and other wild animals were drinking from there, and I remember, too, that when we were young we had these birds that would like to nest through the wetlands, and that's what I missed. I missed some of these birds that have been raised there when I was young, born there when I was young, and these migratory birds that were coming and they would rest there during their periods of migrating. Now these are just by our religion, too, that our wild birds, animals are addressed in our religion.

I would like to see this water come back. I have missed a lot of things that have changed, and I would like this water to come back and would like to see what had happened. I have been telling my grandkids what there was before, and I would like to see it come back so they would see it again. It is something that I have missed.

I mentioned that it's in our religion that we pray that we would be seeing all this wildlife. In our religion we pray that all these wildlife is still be the same and same way with our council. Our council is connected with farming and went on to wildlife, so all this life has been changed for us and that water has a lot to do with it and I would like to see it come back again.

Thank you for your time. Thank you very much.

The CHAIRMAN. Thank you very much. Your testimony will appear in the record.]

Thank you. And with that, the hearing is adjourned.

[Whereupon, at 1:07 p.m, the committee was adjourned, to reconvene at the call of the Chair.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

PREPARED STATEMENT OF TEX G. HALL, PRESIDENT OF THE NATIONAL CONGRESS OF AMERICAN INDIANS

Good morning Chairman Inouye, Vice Chairman Campbell, and distinguished committee members. My name is Tex G. Hall, chairman of the Mandan, Hidatsa, and Arikara Nation and current president of the National Congress of American Indians [NCAI], the oldest and largest organization of tribes in the United States. On behalf of the National Congress of American Indians [NCAI] and its more than 200 member tribal nations, I am pleased to have the opportunity to present testimony on sacred lands protection. Thank you for affording me the opportunity to represent our member-nations and their concerns on this issue.

NCAI has always been deeply concerned with the respectful treatment and protection of sacred lands. Historically subjected to the devastating, systemic destruction of their religious practices and sacred places, tribes continue today to suffer the heartbreaking loss and destruction of their precious few remaining sacred areas. These sacred places are critical to the revitalization and continuity of hundreds of living cultures, and represent an integral part of our religious practice and lifeways.

Every year, sacred sites that are integral to the practice of Indian religions are being destroyed. On my own reservation, Ft. Berthold, we are losing 30 to 40 feet of land along the Missouri River each year. This translates to 30 to 40 feet of burial sites and invaluable traditional cultural properties left unprotected per year, with exposure increasing with each passing year.

We believe this is happening in part because there is no comprehensive, effective policy to preserve and protect sacred lands and resources. Legal remedies such as the American Indian Religious Freedom Act, Executive Order 13007 on Sacred Sites Protection, and the National Historic Preservation Act [NHPA] lack meaningful enforcement mechanisms, are often ineffectively implemented, and provide limited legal redress to aggrieved traditional religious practitioners and tribes.

Sacred Lands Protection Coalition

Individuals and organizations that have been active in the movement to protect sacred lands are as diverse as the sites and the communities who tend them. As a result of the inadequate solutions available to tribes and traditional practitioners for the protection of sacred lands or places, the Sacred Lands Protection Coalition was formed with the goal of strengthening legal protections for sacred lands and to secure administrative accommodations for the use of sacred places by Indian religious practitioners. NCAI has participated actively in that coalition.

Through coalition meetings it has become apparent that sacred places continue to be endangered throughout the Nation and that comprehensive legislation is needed to protect all Native American sacred places. Assembled tribal leaders have reached consensus in various meetings over the last few years to begin an organized effort to halt private and governmentally sponsored development that will threaten or destroy sacred places.

Protection for our precious remaining sacred places is necessary for the survival of traditional religions and tribal cultures, and is key to preserving our cultural

identity and our survival as nations. To date, the Coalition has identified several goals that, if achieved, may begin to address the concerns of traditional practitioners in a comprehensive manner. These goals may serve to inform you as you determine how best to move forward to address this critical and extraordinarily sensitive issue, and we hope to work with you as we further explore and develop the best options for approaching this important effort.

Goals of the Sacred Lands Protection Coalition

1. Strengthen Administrative Policies

Strengthening the administrative policies and regulations of Federal agencies which deal with historical preservation and administration of Federal lands to better protect sacred sites and accommodate the ceremonial use of such sites is a priority for tribes and traditional practitioners. Presently, agencies are encouraged to provide accommodations for the use of sacred places by “Native American religious practitioners.” For most tribes this would limit protections and access to only those locations used or approved by a tribe’s recognized religious leader. But other locations significant to the practice of traditional sacred activities that do not involve the recognized religious leaders—who are male for the most part—also need protection. These locations include women’s places, young adult ‘proving grounds’, and healing locations used by all tribal people. The users of such sacred places may not have the status of “practitioners” and so would not be represented by the limited existing protections.

2. Tribal Consultation

NCAI is deeply concerned with the Federal Government’s failure to ensure adequate government-to-government consultation with tribes regarding sacred places. The input of tribes must be sought and considered when approaching the extremely sensitive process of protecting sacred places. Adequate consultation must be provided when material changes in use of any Federal lands are contemplated and whenever policies of Federal agencies change which materially affect Tribal interests. The United States must adhere to the trust responsibility it has to tribal governments and Indian people to protect and preserve Native culture and tradition. Consultation on a national level is, as always, key to ensuring that the mistakes of the past are not repeated.

3. Compliance and Enforcement of Existing Federal Law

NCAI has recognized a critical lack of enforcement of the provisions in existing laws that protect sacred places. Our sacred places are not held in high regard by the Federal Government, an attitude evidenced by the blatant lack of compliance demonstrated by several of the Federal agencies who most directly deal with sacred lands. Some of the panel members here today will discuss further the violation of rules and regulations designed to protect our sacred properties. Compliance with and enforcement of existing cultural resources protection laws is an integral element of treaty rights protection. We believe that a more consistent outreach and consultation approach, including Federal Indian policy implementation plans with established protocols for working with tribes, would provide more reliable cultural resources protection compliance and enforcement.

NCAI asks your help in requesting an inventory of the existing Federal agency sacred lands protection policies, including consultation policies, and an assessment of how the policies and regulations are currently applied. NCAI also requests that funds be made available for the inventory of policies and practices of Federal agencies. NCAI, as a member of the Sacred Lands Protection Coalition, recommends implementation of one sacred lands protection policy for all Federal agencies to follow and is willing to help develop this policy.

Once this review is completed, we would like the opportunity to provide recommendations to this Committee regarding legislative changes we believe may be necessary to more consistently protect our sacred lands.

4. Increased Protection

Increased protections for all sacred places are essential to traditional practitioners and the generations to come. We need the help of this committee to aid us in educating your colleagues about the importance of protecting these sacred places-areas that are limited in scope but absolutely of essence to the religious freedom of Native people throughout this nation. The Coalition intends to pursue comprehensive and well thought-out legislation to increase protection after all of the issues surrounding sacred places have been thoroughly explored.

5. Funding

Tribes need financial assistance to protect and possibly purchase sacred places. When Federal agencies do not fulfill their obligations to protect sacred places, tribes are left to depend on tribal resources that are in many cases extremely limited. Tribes need the opportunity to protect sacred lands when Federal agencies do not provide protection, and we ask your help in ensuring that tribes in need of assist-

ance have avenues of recourse. Additionally, tribes need funds to support meaningful consultation with Federal agencies to ensure better communication and compliance with existing policies for those sacred places that remain on public lands.

There are many sacred places on lands owned by private entities. Access to sacred places located on private lands can prove to be difficult, and funding for the purpose of securing protection and access to sacred places from willing private owners should be made available to tribes. In seeking Federal aid to purchase or otherwise protect sacred places, I want to be very clear that we are not asking for a hand out—simply a very limited means to undo a small part of the destruction that Federal policies of the past have done to remove sacred lands from the control of the tribes of whose lifeways they are an integral part. It seems a very small thing to ask the Federal Government to step forward and do what is right to protect what is left of our remaining sacred places in light of the shared history of which we are all familiar.

Conclusion

As a Coalition, we recognize these goals will not be easy to achieve. But we have been fighting to save our sacred places for a long time now, and we are prepared to continue to fight for these places which are of absolutely paramount importance to our survival as tribal nations. NCAI commends the Senate Committee on Indian Affairs for providing the opportunity for tribes to convey their concerns, suggestions, and recommendations aimed at protecting the traditions, cultures, and sacred places of native peoples. I would like to thank each of you for taking the time to recognize the importance of this often forgotten aspect of this nation's serious commitment to the protection of religious freedoms, and for standing beside us as we seek to protect our lifeways.

PREPARED STATEMENT OF SCOTT JONES, PUBLIC RELATIONS AND CULTURAL RESOURCES OFFICER OF THE LOWER BRULE SIOUX TRIBE

Mr. Chairman, Committee Members and Guests, good morning. My name is Scott Jones. I am an enrolled member of the Lower Brule Sioux Tribe. I am the Public Information Director and Cultural Resources Officer of that Tribe in Lower Brule, South Dakota.

There are so many issues and problems it is difficult in only 6 minutes to know where to begin. So, I shall begin with what is most important—the Resource. Whether it's the Missouri River, or gathering areas on open prairie, or Yellowstone National Park or our sacred Medicine Butte. To Native people—not just those from ancient time or those in history books—the natural resource, it's various uses, it's various roles, it's health, remain crucial to the continued survival of our traditional Indian culture.

I would like to address today one specific resource—the Missouri River. Since the glaciers pulled back some 12,000 years ago, the Missouri River Basin has been continuously occupied by Indigenous Indian cultures. It is sacred to my people because the river gave us life and the ability to sustain life; the river gave us food; the river enabled vast trade routes to be established; the river in recent history enabled the expansion and colonization of this country by the EuroAmerican; and the River as we know it today has become very important to many interests providing trade, energy, flood control, recreation, and irrigation just to mention a few. The River is sacred to my people today.

The EuroAmerican expansion and continuous growth gave way to treaties and laws. This "Law of the Land" set forth compensations for the aboriginal peoples whose land had been taken—often times illegally. These treaties and laws established trust responsibilities to ensure government agencies treated aboriginal Nations fairly and equally. Many of these treaties and laws set forth protections for our sacred areas and lands that sustained our culture, and some of these laws specifically addressed the rights and management of the Missouri River and the lands that make up her Basin. Please remember that these dams and the lakes they created are not historic—they were created and built in my lifetime. The fulfilling of these trust responsibilities did not offer Native people—particularly those who lived on the River—a role in the creation of this Federal monster. But rather, entire Native populations were removed from the safety of their "reservation" homes, had their farms and gathering areas flooded, their burial grounds flooded or exposed, and their traditional lifeways thrown into turmoil.

The agency responsible for the Operation and Maintenance of this Federal monster—the Army Corps of Engineers, under the Department of the Army—has for the last 50 years appeared to conduct business with the left hand not caring what the right hand is doing. They have been evasive and non-committal in their dealings.

More recent Tribally friendly Executive Orders, Federal law and amendments to existing Federal law have enabled Tribes to force the Army Corps of Engineers to confront specific issues and badger them into creating solutions. Then, only to often having to watch those solutions disappear into the dark hole of a Federal file cabinet, never to be acted upon, implemented or considered in any other action.

We are in a new century now. Tribes understand the demands for energy, tribes understand that we are at war with terrorism. Tribes—particularly those who live along the river and specifically my Tribe, The Lower Brule Sioux have consistently asked for participatory rights in decisionmaking on those issues which directly impact and affect us. At this point, we are asking that existing rights under existing law be followed as they should be, as well as asking that consideration of future legislation be inclusive of actual on the ground tribal need.

Some actions I would recommend include the following:

Develop partnerships which create co-management in areas where both the Corps and Tribes can mutually benefit and save time and money, while at the same time providing greater understanding of the resource.

Ensure participation—real meaningful participation—in meetings on specific issues (EIS, PA's, EA's, etc.) with results that actually become working documents and not find their way into the proverbial Federal file cabinet.

Provide oversight from both Congress and senior Department of Army personnel to make sure the Corps is fulfilling their trust responsibilities and doing their job properly.

Require the Corps to set aside a small percentage of each project to assist in paying for tribal consultation—the same way they pay for engineers and architects and other consultants.

Address the River holistically as the river basin that it is—not as a series of segments, so that planning all of the myriad of actions is more consistent. This would facilitate planning on the river, and allow existing documents to be used in more than one action, thus preventing a reinvention of the wheel with every action.

End crisis management through the development of memoranda of agreement with each affected tribe so that management is inclusive and responsibilities can be shared.

Encourage contracting with tribes, not outside firms, in areas such as cultural resource work, enforcement and wildlife habitat renewal, water treatment, et cetera

Tribes are major stakeholders on the River because of their aboriginal rights, their unique legal and political status, and because their continued survival depends on the health and well being of this sacred River.

It is imperative that you understand that these native resources—every plant, every rock, every tree, our rivers and springs are potentially a required part of a medicine or used in a traditional worship activity. The very fabric of our culture is built with natural material that evolves back into mother earth.

Aboriginal cultures were founded in the natural resource, Euro-American cultures were based upon man made materialistic resources, the laws that we live under today do not recognize nor are they reflective of this fundamental difference.

As I said before, we all recognize the demands of development, of recreation, of flood control, of energy needs. There is no reason to always be at odds. The demands of this century can be met by working together. Working together, we can protect this resource, we can create solutions, we can create jobs on reservations, and we can create ways to manage energy needs and development in a responsible way that will carry us into the future.

Creating organizations such as the Sacred Sites Coalition which acknowledge and accept the Tribal lead, will foster understanding while insuring tribes have an adequate voice to protect American Indian freedom of religion through the preservation of and access to sacred sites, gathering areas and necessary natural resources for the continued vitality of our threatened traditional worship practices and lifeways.

Thank you for the opportunity of coming before you to address these issues.

I would be happy to answer any questions you may have on what I have said. I will submit a more comprehensive written statement for the record later this week.

Thank you.

PREPARED STATEMENT OF RACHEL JOSEPH, TRIBAL CHAIRWOMAN, LONE PINE
PAIUTE-SHOSHONE TRIBE

Good morning, Mr. Chairman and distinguished members of the Senate Committee on Indian Affairs, I am Rachel A. Joseph, chairwoman of the Lone Pine Paiute—

Shoshone Tribe located on the Eastern side of the Sierra in Central California in the Owens Valley.

It is an honor and privilege to testify here today on behalf of my tribe. I speak today not just on behalf of my tribe but for Paiute and Shoshone, including my parents, who have prayed, worshiped and healed themselves at Coso Hot Springs. Coso Hot Springs are located on the China Lake Naval Air Weapons Station in southeast California. The Coso Hot Springs have been visited and used by our people and other local Native Americans for time immemorial. Our elders tell us of the healing power of the warm Coso water and mud and how that healing power is no longer the same.

In 1947, the Department of the Navy acquired Coso Hot Springs through condemnation. Coso Hot Springs and the immediate area were believed to be rich in geothermal energy and plans to tap this energy were initiated in the late 1970's with the Navy contracting with a private energy company to construct a geothermal plant near the Hot Springs. In January 1978, Coso Hot Springs was placed on the National Register of Historic Places as a historic and cultural property.

Tribal members and the State Historic Preservation Office (SHPO) were concerned that geothermal production in and around the Coso Hot Springs could have an adverse effect on the Coso Hot Springs and indeed it has. Over the years the temperature of the hot springs water and mud have grown so intensely hot that tribal members cannot bathe there. Our tribal people have long requested that the Navy address the conditions of the springs without success. The Navy did conduct a study over 10 years ago using its own geothermal staff and reported that there was no connection between the conditions at the springs and the geothermal development occurring next to the springs. Without tribal resources we have been helpless to conduct our own independent, unbiased evaluation of the Hot Springs and determine the true cause of their destruction and desecration.

Our need to protect Coso Hot Springs continues as the Navy currently is conducting deep test well drilling to the north of the springs to determine whether geothermal production and development should be expanded. My tribe, as well as every tribe in the Owens Valley, objected to the test well project. The Navy received our comments, as mandated by Federal law, but did nothing with them. The test well project has gone forward and we are now left with waiting for the next step from the Navy, which we believe will be to expand development and production near the springs.

Tribal members have seen heightened security at Coso Hot Springs in light of the events of September 11, and are routinely told of the Navy's need for greater energy development, but my people can not allow our Coso Hot Springs to be sacrificed for these objectives. Every Federal agency must aggressively protect Native American sacred sights and share that responsibility with native people. Far too often, Federal projects will threaten a sacred sight and we are asked to comment as part of the Federal agency's "consultation" process. Our comments are submitted and seldom responded to. The Federal agency responsible for the project proceeds thinking that it has complied with its consultation requirements, when in fact they never really heard what the Tribe had to say or adequately addressed the Tribe's concerns. All Federal agencies and departments need to take a renewed look at their consultation process with Tribes and truly listen to what Native people are trying to tell them. The Native American Sacred Lands bill will hopefully refocus the Federal Government and bring greater protection for sacred land thus ensuring the opportunity to continue traditional activities.

Thank you, for the opportunity to present this testimony.

DEPARTMENT OF DEFENSE
OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE
(INSTALLATIONS AND ENVIRONMENT)

PREPARED STATEMENT
OF

MR. PHILIP W. GRONE
PRINCIPAL ASSISTANT DEPUTY UNDER SECRETARY OF DEFENSE
(INSTALLATIONS AND ENVIRONMENT)

FOR THE OVERSIGHT HEARING BEFORE THE

COMMITTEE ON INDIAN AFFAIRS
UNITED STATES SENATE
ON
PROTECTION OF NATIVE AMERICAN SACRED PLACES

RUSSELL SENATE OFFICE BUILDING
JUNE 4, 2002, 10:00 AM

INTRODUCTION

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE ON INDIAN AFFAIRS: I am Philip W. Grone, Principal Assistant Deputy Under Secretary of Defense (Installations and Environment). I thank you for this opportunity to speak on the Department's programs regarding the protection of American Indian sacred sites. First, I would like to acknowledge the hard work that many tribal and non-tribal organizations have put into this issue over the years to ensure that American Indians may continue to have access to sacred sites for religious and ceremonial purposes. The Sacred Lands Protection Coalition, in particular, has worked hard over the last two years to bring these issues into focus for Federal land managing agencies, the Congress, and the general public. The Department of Defense (DoD) was pleased to participate in the recent Sacred Lands Forum by hosting a screening of the film, *In the Light of Reverence*, at the Pentagon. Being a part of this event heightened our awareness of the importance American Indians ascribe to sacred sites and I want to assure you that the Department of Defense will continue to work cooperatively with tribal organizations and this Committee to help protect these sites.

The central mission of the U.S. military forces is the defense of the United States – its people, its land, and its heritage. The importance of this mission was reinforced by the events that have taken place over the last year. America's cultural resources, including those that are significant to American Indians, are an integral part of our nation's heritage. It is essential that we conserve and defend the places, objects, and records associated with our national heritage, and the ideas they embody for future generations. Military installations contain sites and landscapes where American Indians once lived, worshiped, hunted, fished, farmed, constructed temple mounds, and buried their dead. The descendants of American Indians who used or created such places still value these places for their cultural and religious importance. Protecting these resources is a fundamental part of the Department of Defense's mission.

Today, we believe that DoD has a solid record of response to American Indian concerns and we are working cooperatively on several fronts to address tribal issues. DoD has over 25 million acres of land under its administrative control and many of these lands are located near American Indian communities or areas of high Native American traditional use. We know that our military operations and training activities, in some cases, continue to affect the ability of American Indians to access sacred sites, to hold

traditional ceremonies, and to practice their religions. We are, however, ever cognizant of the importance of sacred sites to American Indians and we are working hard to accommodate their interests in sacred sites with our military requirements.

DOD AMERICAN INDIAN AND ALASKA NATIVE POLICY

DoD adopted its current policy on American Indians and Alaska Natives in 1998 in order to bring more uniformity to the way in which we work with tribes on DoD activities that could potentially affect tribal lands and resources, including sacred sites. The policy was designed to underscore the obligations derived from current laws, regulations, and executive orders governing our relationship with tribal governments. Our policy is comprehensive and highly regarded by tribal governments as well as other Federal agencies. We developed the policy in close consultation with tribal governments. Through the work of both a tribal steering group and a DoD steering group, the policy development process took over 20 months with presentations and briefings throughout Indian Country, including correspondence on several occasions with all 560-plus Federally-recognized tribes. We held breakout sessions at tribal conferences, such as the National Congress of American Indians and the National Tribal Environmental Council, and we met with several tribes on an individual basis.

We regard our policy as the cornerstone for DoD/tribal relations and the policy has resulted in significant improvements in the way we interact with tribal governments. The policy reaffirms DoD's commitment to meet its Federal trust responsibility and other obligations to tribes and to consult with affected Federally-recognized tribes on a Government-to-Government basis. The policy includes four guiding principles for our interactions with tribes: Trust Responsibilities; Government-to-Government Relations; Consultation; and Natural and Cultural Resources Protection.

Trust Responsibility

The first guiding principle acknowledges our Federal "Trust Responsibilities" to tribes. Our trust responsibilities are based upon the special relationship that the United States Government maintains with Tribal Governments. Some of these responsibilities are specified in treaties. Others are more generally expressed and implemented in Federal laws such as the Native American Graves Protection and Repatriation Act, the National Historic Preservation Act, the National Environmental Policy Act, the Archaeological Resources Protection Act, and the American Indian Religious Freedom Act. Additional responsibilities may be found in executive pronouncements such as Executive Order 13007, "Indian Sacred Sites," and Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments."

Although the Military Departments do not hold lands in trust for tribes, like the Department of the Interior, our mission activities can affect adversely tribal lands and cultural resources or off-reservation treaty rights, such as those for hunting and fishing.

For example, various tribes in the Pacific Northwest have treaty rights to engage in certain off-reservation subsistence activities, including the right to fish at "usual and accustomed" (U&A) locations within their traditional fishing areas. In Puget Sound, the Suquamish Tribe's adjudicated U&A treaty rights encompass several DoD contaminated sites. Because of tribal concern that these cleanups may adversely affect tribal fishing grounds and shellfish beds, and recognizing that the Suquamish Tribe possessed considerable expertise and traditional ecological knowledge regarding these resources, the Navy entered into a cooperative agreement with the Tribe. The agreement enables the Navy to benefit from the Tribe's assistance in developing response actions that address the contamination problem without harming fin- and shellfish stocks.

Government-to-Government Relations

The second guiding principle, "Government-to-Governmental Relations," involves working with Federally-recognized tribes on a Government-to-Government basis.

We have many examples of implementation of this principle not only through the activities of the Military Departments, but also through DoD's efforts to enter into Cooperative Agreements with tribal governments to work in partnership to address environmental impacts on Indian lands.

For example, in 1996, DoD created the Native American Lands Environmental Mitigation Program (or NALEMP) to address environmental impacts on Indian land resulting from past DoD activities. Since its creation, DoD, in partnership with tribes, has received reports of over 300 sites on Indian lands. We are now investigating these sites to determine an appropriate response. Many of these sites have areas of cultural significance associated with them. At the direction of Congress to mitigate impacts on Indian lands, we have entered into over 16 cooperative agreements with tribal governments for this purpose. These cooperative agreements allow tribal governments to work in partnership with DoD to mitigate DoD impacts on their lands. Moreover, the cooperative agreements:

- Foster tribal/DoD partnerships in the mitigation of environmental and cultural resource affects of DoD activities;
- Assist tribes in building the capacity to manage and protect their environmental resources as a by-product of the mitigation activity;
- Resolve complex issues between DoD and tribes;
- Build a knowledge base among tribal environmental/resource planners; and
- Integrate new ideas and technology into environmental and cultural resource mitigation activities on Indian lands.

Consultation

The third guiding principle, "Consultation," recognizes our obligation to meaningfully consult with tribal governments whenever tribal lands or tribal interests may be affected by DoD activities. A good illustration of our consultation activities involves the Suquamish Tribe of the Port Madison Indian Reservation, Washington. The Navy and the United States Army Corps of Engineers (USACE) are working closely with the tribe to address potential impacts to treaty-reserved tribal resources attributable to military activities in the region. Encompassing a significant portion of the Puget Sound, the Suquamish tribe's adjudicated "usual and accustomed" fishing area includes several Naval installations and Formerly Used Defense Sites, including the Puget Sound Naval Shipyard, Bremerton, and the Naval Undersea Warfare Center, Keyport. The Navy, USACE, and other Federal agencies are working to remediate environmental damage at sites affecting tribes. More importantly, the cooperative and collaborative working relationship with the tribe is helping the Navy and USACE meet its trust responsibilities while helping to sustain access to important military installations. In keeping with DoD policy, the Navy and USACE consult with the tribe on vital environmental and cultural information, and provide an opportunity for the Suquamish tribe to play a substantial and meaningful role in regional remediation efforts. Working in consultation with the tribe has led to a more efficient and comprehensive review of remediation activities, helping to expedite cleanup while ensuring the tribes treaty resources are restored and protected.

Natural and Cultural Resources Protection

The fourth and final guiding principle, "Natural and Cultural Resources Protection," was included in our policy as a statement of our intent to undertake actions and to manage lands mindful of the special significance tribes ascribe to certain natural

and cultural resources and traditional cultural properties. We know that one of the most important issues of concern to tribes is the protection of traditional cultural properties. Many of our installation commanders have formed partnerships and undertaken formal agreements with tribes as part of an overall plan to protect the cultural resources located on Military Department lands. These partnerships and agreements cover such issues as access to traditional ceremonial and sacred sites; gathering of traditional herbs and medicinal plants; and the protection of grave sites, funerary objects, and human remains. Installations that have significant numbers of sacred or traditional use sites also work with tribes that are connected to those sites on an on-going basis. A few examples follow:

- **Barry M. Goldwater Range, Arizona** -- At the Barry M. Goldwater Range, Arizona, an American Indian Liaison position was established as a result of the 1989 record of decision resulting from an environmental impact statement on supersonic flights in the Sells Military Operations Area. This was in response to concerns of the Tohono O'odham Nation that turnover of military personnel hindered their ability to resolve issues. The liaison serves as a single point of contact to respond to operational issues and concerns of the Nation. To date, the Air Force and the Marine Corps have surveyed about 3.5 percent of the 2.7 million acres, cataloguing over 1,000 archaeological sites. As more areas are surveyed, the installation is finding an increased need for site protection. It is important to note that most sites are imperiled due to natural erosion or vandalism, not from military training.

The Air Force also sponsored a project with various tribes to identify places that are culturally important to tribes in the area to include traditional cultural places and sacred sites. By identifying these sites, the Air Force and Marine Corps hope to afford more protection and provide access to the tribes for religious and spiritual ceremonies. Another project is the collection of oral histories from elders and having tribes write the cultural history from their perspective to better understand traditional uses of the area. All of these projects at the Goldwater Range will assist the Air Force and Marine Corps in developing an Integrated Cultural Resources Management Plan for the range. The Air Force and Marine Corps have consulted with 26 Native American tribes in Arizona, California, and New Mexico to seek their cooperation.

- **Fort Benning, Georgia** -- Cooperation among the State Historic Preservation Officers of Georgia and Alabama, 11 Federally-recognized American Indian Tribes, and the public ensures proper treatment of traditional cultural properties, historic burials, and

sacred sites on Fort Benning. Fort Benning consults with the following Federally-recognized tribes: Alabama Quassarte Tribal Town, Alabama Coushatta Tribal Town of Texas, Coushatta Tribe of Louisiana, Kialegee Tribal Town, Chickasaw Nation, Muscogee (Creek) Nation, Miccosukee Tribe of Florida, Seminole Nation of Oklahoma, Seminole Tribe of Florida, Poarch Band of Creek Indians, Thlopthlocco Tribe of Oklahoma.

In consultation with 11 American Indian Tribes, Fort Benning has established a federally designated re-interment facility for Native American repatriation burials and for other historic Indian human remains requiring removal from their original locations, either on Fort Benning or elsewhere in the region. The consulting Tribes initiated the concept for a re-interment facility during discussions with the Muscogee (Creek) Nation and ultimately selected the one-acre site from six sites presented for consideration by Fort Benning. Fort Benning requested and received an exception to policy from the Department of the Army (DA) to establish the re-interment facility on the post. The facility will be used, in consultation with the Tribes, for the reburial of Native American remains under the Native American Graves Protection and Repatriation Act (NAGPRA), and for associated funerary objects.

Fort Benning formed close government-to-government relationships with consulting Tribes. Semiannual meetings cover issues of mutual importance to the Tribes and the installation. The Garrison Commander is the Installation Commander's personal representative and chairperson for the meetings. Fort Benning's Cultural Resource Manager routinely interacts with Tribal representatives on issues affecting American Indian cultural properties.

- **Fort Carson and Pinon Canyon, Colorado** -- Prehistoric Native American sites include campsites and resource processing areas (hunting and gathering, lithic extraction and processing activities), rockshelters, large multi-room vertical stone slab villages, single room habitation sites, stone circle (teepee ring) sites, quarry (lithic) sites, game-drive sites, rock art (petroglyphs and pictographs), and vision quest sites. Fort Carson began consultation with Native American tribes in 1983 when it instituted an ethnographic survey of tribes concerned with traditional uses of natural resources and with sacred sites at the Pinon Canyon Maneuver Site. Fort Carson actively consults with tribes on a government-to-government basis and allows access to the installation for ceremonies and the collection of plants.

- **Fort Lewis and Yakima Training Center, Washington** -- Native Americans hunt and collect plants on the installations and have access to other resources within the Yakima Training Center. The resources include, but are not limited to, the land and water, fish and wildlife, cultural and archaeological resources. The Army respects the access rights of the Yakima Indian Nation under the Treaty of 1855. At the same time, the Army and the Yakima Indian Nation recognize the need to establish reasonable entry procedures to prevent injury, loss of life or undue interference with ongoing military operations. To ensure that safety hazards are minimized, and that no conflicting military exercises are taking place, the Yakima Indian Nation have established protocols at their headquarters for coordination of access by Yakima tribal members.
- **Fort Sill, Oklahoma** -- Native American servicemen conduct an annual sweatlodge ceremony at Medicine Bluffs, a prominent landform long held sacred by Plains Indian tribes. The Medicine Bluffs are recognized not only as a sacred site, but they are also listed on the National Register of Historic Places. The installation has undertaken a number of initiatives, with no negative effects on training, to avoid this area during training and in order to protect the site.
- **Marine Corps Base Camp Pendleton, California** -- Marine Corps Base Camp Pendleton, consults on a government-to-government basis with representatives of six Luiseño and thirteen Kumeyaay Federally-recognized tribal governments. The base also consults with three Juaneño and one Luiseño non-Federally-recognized tribal governments. The tribes are routinely consulted on issues pertaining to cultural resources and undertakings that have the potential to affect cultural resources. Only one of the three Juaneño tribal governments has requested permission to have access to a sacred site.
- **Marine Corps Base Hawaii** -- Evidence of Hawaiian occupation of Mokapu peninsula consists of temporary coastal campsites, remnant stone temples, and shrines. Native Hawaiian descendants of Mokapu's original inhabitants claim cultural and religious attachment to these sites. Dating to the late 1980s and continuing to the present, the Marine Corps Base Hawaii has received requests for access to visit the area. The requests have been made by two distinct groups: a native Hawaiian organization known as the Temple of Lono and a native Hawaiian family group known as the Paoa/Kea/Lono 'Ohana. The purpose of the requests is to renew, worship, and practice traditional beliefs, and for conducting spiritual gatherings to end the season of Makahiki, an annual festival. The requests have always been accommodated and the visits have

lasted from a few hours to an overnight stay.

- **Naval Air Station Fallon, Nevada** -- The Naval Air Station in Fallon, has an agreement with the Fallon Paiute-Shoshone Tribe, the Nevada State Historic Preservation Officer, the U. S. Fish & Wildlife Service, and the Nevada State Museum. This historic MOU commits state and federal agencies to a consultation and consent policy about cultural/archaeological resources. The MOU governs excavation and removal of Native American remains, sacred and funerary objects, and "cultural patrimony" of the Fallon Tribes.
- **Nellis Air Force Base, Nevada** -- Nellis Air Force Base began a long-term program of cultural preservation with nearby tribes in January 1996. Several Shoshone, Paiute, and other tribes have traditional and court-validated ties to the lands that Nellis occupies. Thousands of archaeological sites, including caves with petroglyphs and rock art are located on these lands. With the cooperation of tribes, the Air Force is involved with an extensive sacred or traditional site inventory and consults with tribes on the results of its efforts. The tribes are active partners in the installation's cultural resources management program.
- **Robbins Air Force Base, Georgia** -- Robbins Air Force Base has developed an effective community partnership with the Muskogee (Creek) Nation. This partnership promotes projects that educate the general population about the Nation's culture and history. One such project, an exhibit at the Base Museum of Aviation, recreated the story of the original people that inhabited the lands where the base is located.
- **Vandenberg Air Force Base, California** -- At Vandenberg AFB, there is a long-standing partnership between the base and the Chumash Indians. Members of the tribe participate in planning, review, and implementation of projects that have the potential to affect adversely traditional and contemporary cultural resources. Ground-disturbing activities have often been re-sited to maintain the integrity of areas with special significance. If an activity cannot be re-sited, members of the Chumash serve as monitors during all phases of excavation and construction. This relationship, begun in 1984, has expanded into a very positive partnership that exists today.

SACRED SITES PROTECTION TOOLS

As a tool, the integrated cultural resources management plan or ICRMP, I mentioned earlier, relative to the Goldwater Range, is not unique to that range. Although

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not required by law, ICRMPs are required by DoD policy for all DoD installations. ICRMPs provide a valuable tool for devising a sound cultural resources management strategy. The purpose of ICRMPs is to help ensure compatibility between the installation military mission, or other planned activities, and the management of its cultural resources. An ICRMP spells out approaches to the fundamental requirements of cultural resource management: identification and evaluation of cultural resources; consultation with concerned parties; consideration of impacts; and, decisions about how to treat resources. Typical ICRMP requirements include surveys, studies, consultation with affected parties, including Native Americans, and documentation of the decision on how to address project effects on the cultural resources. The development of ICRMPs is vital to our ability to get out front in management of culturally significant sites, rather than operate in a reactionary mode which can lead to mission related delays that can be costly and counterproductive.

In recognition of the importance of ICRMPs in installation planning, the Department has provided to installation commanders, a recently completed publication, Commander's Guide to Stewardship of Cultural Resources. This guide, developed through the DoD Legacy Resource Management Program, provides reference to all applicable federal law, Executive Orders and DoD Instructions pertaining to cultural resources. The guide identifies ICRMPs as an effective tool in identifying and managing cultural resources within the constraints of the military mission. The guide stresses the positive benefits for implementing an ICRMP: Streamlined planning, sound economics and pride in heritage. The guide also lists Command responsibilities and provides examples of successful stewardship.

An example of successful ICRMP implementation, The Louisiana Army/Air National Guard (LAARNG) worked in cooperation with eight tribes, most located within the state itself and several located outside, to solicit comments regarding LAARNG's Integrated Cultural Resource Management Plan (ICRMP). In this case, the installation utilized a facilitator to assist in establishing formal consultation with tribes. This was accomplished by the installation entering into a Memorandum of Understanding (MOU) with each of the eight tribes. The MOUs represented a symbolic, trust-building gesture and entailed how consultation would be carried out. Subsequent meetings have become an annual event where the signatory tribes meet with the installation to explore new issues or reevaluate the ICRMP. The LAARNG has developed a successful program, working in consultation with tribes, to identify important cultural resources, traditional cultural properties and sacred sites.

If an installation has yet to complete an ICRMP, it must consult with relevant regulatory agencies each time it plans an action that may affect cultural resources. Such actions include training exercises; maintenance of buildings and grounds; alteration of buildings; construction; landscaping; base closure; records disposal; disposal of personal property; curation of artifacts; and, a host of others.

Another tool we believe will be valuable in our ability to address resources of special significance to tribes is a recently completed Legacy Treaty Research Project which identified treaties with explicitly reserved land-based rights associated with current DoD installations. With funding from the FY 99 Legacy Resource Management Program, the National Association of Tribal Preservation Officers, working through a cooperative agreement with the Army Environmental Center, identified 22 of 488 treaties which contained rights clearly affecting 58 DoD installations. The report provides installations with a tool for assessing their trust responsibilities to tribes and will be valuable during the tribal consultation process. The report also provides a brief history of treaty-making and the U.S. military interactions with tribes.

TRAINING

In order to ensure that our American Indian and Alaska policy is successfully implemented, the Office of the Deputy Under Secretary of Defense (Installations and Environment) has sponsored a series of DoD-wide training courses to assist our military and civilian personnel in understanding the unique relationship that exists between the Federal government and tribal governments. This is important to our sacred sites program because our ultimate success in working with tribes is tied to our understanding of the issues. Since 1999, we have sponsored seven courses and trained over 500 DoD staff on American Indian law, history, consultation, cultural communications, and cultural resource issues. We are targeting our initial training at our installations that are located in regions with significant tribal presence. The courses are designed to incorporate participation by local tribal historians, cultural resource specialists and tribal elders. Following the training, participants are requested to evaluate the quality and worth of the course. Military and civilian personnel report that they believe that the training is greatly beneficial in helping them relate to tribes around their installation and will help them do a better job relating to tribes. The Military Departments are also conducting training of their own. The Naval School, Civil Engineering Corps Officers, has been providing Native American training for the last four years with the assistance of

my office. The National Guard has also been significantly involved in training its personnel.

CONCLUSION

Decades ago, the Air Force obtained a huge tract of land within the Oglala Lakota Pine Ridge Reservation, South Dakota, for preparedness training. The Badlands Bombing Range, used as a practice range for more than 30 years, has left potential unexploded ordinance, scattered old ammunition debris, and related problems. These lands are now being cleaned up and returned to the tribe. DoD is working with the tribe through the Formerly Used Defense Sites Program and through a NALEMP cooperative agreement to address issues associated with the former Badlands Bombing Range. This project is a living example of the way we are partnering with tribes to address their issues.

The tribe will once again have access to Sacred Sites and other culturally significant places located on these lands. As the project and partnership grow, DoD participants are gaining a better understanding of the unique government-to-government relationship that exists between the U.S. Government and tribal governments. Within this same spirit of cooperation, we can and will continue to work with tribes to address the protection of Sacred Sites on lands affected by DoD.

That concludes my statement. I would be pleased to answer any questions you might have.

**DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)**

**COMPLETE STATEMENT
OF**

Mr. George S. dunlop
DEPUTY ASSISTANT SECRETARY OF THE ARMY (POLICY AND LEGISLATION)

FOR THE HEARING BEFORE THE

**COMMITTEE ON INDIAN AFFAIRS
UNITED STATES SENATE
ON**

SACRED SITES AND LANDS PROTECTION

**ROOM 485, RUSSELL SENATE OFFICE BUILDING
10:00 am, June 4, 2002**

INTRODUCTION

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE: I am George S. Dunlop, and I am here today in my role as Deputy Assistant Secretary of the Army for Civil Works (Policy and Legislation). I am pleased to be here today to testify on the matter of sacred sites and lands protection. I am accompanied by Mr. Chip Smith, Assistant for Environment, Tribal and Regulatory Affairs in the Office of the Assistant Secretary of the Army for Civil Works. The Army is pleased to collaborate with the Sacred Lands Protection Coalition established by the National Congress of American Indians on this very important matter.

Administration View

On November 12, 2001, President George W. Bush, by Proclamation, stated that the strength of our Nation comes from its people and that the Native peoples of North America, including Alaska, played a unique role in the shaping of our Nation's history and culture. American Indians and Alaska Native cultures have made remarkable contributions to our national identity that enliven and enrich our land. As we move into the 21st century, American Indians and Alaska Natives will continue to play a vital role in maintaining our Nation's strength and prosperity.

The Proclamation acknowledged the sovereignty of Tribal governments, and set forth a commitment to stimulate economic opportunities for reservation communities. The Department of Defense, the Department of the Army, other military departments, and Federal agencies are working hard to build more effective day-to-day working relationships. Our responsibility is to work with Tribes to address concerns about sacred sites and lands that are affected, or could be affected, by Army Civil Works activities. This goal is consistent with the President's commitment to help "preserve their freedoms, as they practice their religion and culture".

Army Corps of Engineers

Historically, we have not had the opportunity to testify before the Senate Committee on Indian Affairs. Therefore, I will begin with a brief summary of our missions and organization. The Army Corps of Engineers provides quality, responsive engineering and environmental services to the Nation during times of peace and war. We plan, design, build and operate water resources and other civil works projects. We design and manage the construction of military facilities in the United States and overseas as well as support contingency operations. We provide real estate services within the United States and overseas to Defense agencies as well as direct support to contingency operations overseas. Additionally, we provide design and construction management support for other Defense agencies, other Federal agencies, State, Tribal and local governments, and international assistance programs. Our extensive research and development capabilities support military engineering, terrain and geospatial systems, installations and environment and water resources from the coldest regions of the earth to the hottest.

Within the Corps headquarters, day-to-day management of efforts in support of military facilities and operations at home and abroad, as well as much of our support for others, is managed by the Director of Military Programs. The day-to-day management of the Army's Civil Works program is done by the Director of Civil Works. Both of these individuals report to the Chief of Engineers, who in turn reports to various Assistant Secretaries of the Army, the Secretary of the Army, and the Chief of Staff of the Army, depending on the mission being accomplished. For the Civil Works program, the Chief of Engineers reports to the Assistant Secretary of the Army for Civil Works, who has responsibility for policy oversight of the Civil Works Program.

The various Civil Works authorities and programs authorized by Congress apply to the 50 States, District of Columbia, Commonwealth of Puerto Rico, the Virgin Islands and the various trust territories in the Pacific. Civil Works projects, programs and activities are executed by 38 Corps of Engineers districts, under the oversight of eight divisions, which have been assigned Civil Works responsibilities. Civil Works activities focus primarily on water and related land resources issues, in the areas of flood damage reduction, navigation, environmental and ecosystem restoration and protection, hurricane and storm damage reduction, recreation, natural resources management, water supply, and hydropower.

How Army Civil Works Might Affect Sacred Sites and Lands

Although the Corps has the potential to affect sacred sites and lands by both Civil Works and Military Programs activities, my testimony focuses on the Civil Works activities of the Corps, how they can affect sacred sites and lands, and what we are doing to address these issues within the Civil Works Program. Civil Works activities may affect sacred sites and lands in three basic ways.

First, the Corps has jurisdiction over almost 12 million acres of land and water resources that were acquired over the past 100 years primarily for flood protection,

navigation, and multiple purpose projects. For example, the Corps acquired nearly 1 million acres of land for the Upper Mississippi River Navigation System, which extends from St. Paul, Minnesota, to St. Louis, Missouri. Another example is the Missouri River Pick-Sloan Project, a system of six large reservoirs and channels extending from Fort Peck, Montana, 961 miles southeast, to the Gavins Point Dam in South Dakota. A total of 3.1 million acres of land, including 350,000 acres of Indian land, was acquired for the Pick-Sloan Project.

The Corps has operation and/or maintenance responsibility for well over 1,000 projects. Of these, the Corps operates on a day-to-day basis over 500 major lake and river projects, most of which include adjacent lands. These lands contain over 60,000 known archaeological and sacred sites, about 80 percent of which are associated with Indian Nations. The Corps estimates that 25 percent of their projects have the potential to affect directly the treaty and trust resources of about 90 Tribes in the lower 48 states, most of whom have reservation lands. Sacred sites and lands were, in many cases, affected by initial project construction, and continue to be affected by project operations. Impacts at completed projects are caused principally by erosion, exposure to the elements, water inundation and retreat, and vandalism. Although Alaska Natives do not have reservation land, Civil Works activities, especially under the Regulatory Program, affect villages and the resources upon which they depend for subsistence.

Another way Corps activities can affect sacred sites and lands is by the implementation of water resources projects with non-Federal project sponsors, including Tribes. Typically, non-Federal sponsors acquire the lands, easements and rights-of-way necessary for project implementation, and these sponsors subsequently are responsible for operating and maintaining completed projects. Sacred sites and lands could be affected by project planning, construction or operations. The Corps takes these impacts into account prior to construction by complying with the National Environmental Policy Act and all historic preservation laws. The objective is to identify resources, evaluate their significance, and avoid affecting them adversely. Unavoidable impacts are mitigated primarily by recovering and preserving information.

The third way in which Corps activities might affect sacred sites and lands pertains to the Corps Regulatory Program. Under the authorities provided by the Rivers and Harbors Act of 1899 and the Clean Water Act, as amended, the Corps evaluates and issues permits for activities in navigable waters, and waters of the United States, including wetlands. Over the past few years, the Corps has provided written authorizations for about 90,000 activities each year. The Corps complies with environmental and historic preservation laws as part of its permit evaluation process, and works with Tribal governments to avoid or minimize impacts, many on private lands.

Army Civil Works and Indian Affairs

Now I would like to discuss Indian Affairs activities for the Army Civil Works Program. The Corps has a clear and consistent record of working to improve relationships with Indian Nations. Over the past ten years, the Corps has spent approximately \$200 million on Indian Affairs activities. These funds were used for compliance with the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act and to implement projects benefiting Indian tribes, their rights and lands.

A heightened effort to address the challenges of government-to-government relations began in April 1994 when the President issued a Memorandum for the Heads of Executive Departments and Agencies entitled "Government-to-Government Relations with Native American Tribal Governments". This memorandum signaled the beginning of a new era in working with Tribes as sovereign governments.

In response to this memorandum, Army Civil Works established a Native American Inter-Governmental Relations Task Force (Task Force) to develop recommendations on opportunities to improve government-to-government interactions with Federally recognized tribes. Between February 1994 and June 1995, Task Force members, Corps Commanders, and staff met with government representatives from 186 of the Federally recognized tribes in the lower 48 states. Nineteen workshops were held and there were over 550 tribal participants.

In August 1996, information from the workshops was published by the Corps' Institute for Water Resources in a two volume report entitled *Assessment of Corps/Tribal Intergovernmental Relations*. The report contains a series of recommendations for improving relations and enhancing the Corps' ability to work with Indian Nations. The Task Force was reconvened in 1997 to assess the progress being made toward implementing the recommendations of the report. This performance evaluation benefited from new information obtained from interactions with Tribes, and information obtained by our participation on Department of Defense Native American and Alaska Native policy and curation task forces.

As a result of the cooperative efforts and extensive learning process described above, in February 1998, the Chief of Engineers published Policy Guidance Letter No. 57, *Indian Sovereignty and Government-to-Government Relations with Indian Tribes*, as interim guidance. Included with the guidance were *Army Civil Works Tribal Policy Principles* which explicitly acknowledge our unique relationship with Indian Tribes as sovereign Nations, affirm that Tribes retain their inherent rights to self-government, and mandate consultation prior to final decision making. Using the *Principles*, the Corps was directed to explore, with renewed vigor, opportunities to remove impediments to working effectively with Tribal governments on matters involving trust resources, treaty responsibilities, and Tribal rights. A copy of the *Principles*, which are fully consistent with the Department of Defense Native American and Alaska Native Policy, is attached to my written statement.

In 2000, an Indian Affairs working group was convened to discuss challenges

and opportunities. Participants included representatives from my office, Corps Headquarters, divisions, districts, and laboratories. The resulting product was a concept paper entitled *USACE Tribal Nations Strategy*. The *Strategy* identified eight broad goals related to infrastructure, partnering, economic development, policy and legislative needs, training, communications, and accountability. The *Strategy* reflected the level to which the Corps has moved forward in its Indian Affairs efforts over the past decade.

In addition to the efforts noted above, Army Civil Works has interacted with nearly 100 Tribal governments on a wide range of topics, including resource management and protection, land transfers and leases, infrastructure needs, training, consultation practices, and water resources projects of various kinds. To meet the challenge of effective communication and consultation, the Corps has taken two very positive steps to bolster support for Indian Affairs. First, over 70 employees across the country have been designated as Native American Specialists or Coordinators (points-of-contact). These individuals come from a broad array of backgrounds and disciplines, including engineers, biologists, outdoor recreation planners, attorneys and archeologists. They have chosen to do this work and share a common desire to improve relations with Indian Nations. Secondly, the Corps has begun to hire and use the services of formally designated Native American Liaisons, individuals who by background, training, or both, have the unique expertise necessary to work with Indian people. Most of the Native American Liaisons are Indian, and those that are not typically have a long history of successfully interacting with Indian people. The Specialists, Coordinators, and Liaisons serve to advise Commanders and staff, help improve understanding, build relationships, and are an important points of entry for Indian people trying to work with the Army Civil Works program.

In 2001, the Corps established a *Tribal Issues Group (TIG)* in its Headquarters to support the Specialists, Coordinators, and Liaisons, or any other element of the Corps that requires support. The TIG is comprised of representatives from most of the major functional areas in the Corps, such as engineering, planning, operations, real estate, regulatory, and counsel. These staff are available to help identify and resolve policy issues or provide guidance.

Legislative Initiatives

Now I would like to briefly discuss several key legislative initiatives. The Administration's proposal for a Water Resources Development Act (WRDA) of 2000, contained two provisions specifically developed to benefit Indian Nations. Congress enacted both provisions.

Section 203 of WRDA 2000, the "Tribal Partnership Program" enhances the Corps authority to address Tribal water and related land resources needs. The program focuses on flood protection, environmental restoration and protection, and preservation of cultural and natural resources. There are several unique features of this authority. It acknowledges that natural and cultural resources are, for most Indian

people, inextricably linked. Thus, the Corps will be able to formulate integrated natural and cultural resource projects for a whole host of purposes, including projects related to the protection of sacred sites and lands, and for improvements related to fish and wildlife species. The Corps may provide credit towards the Tribal cost share for in-kind contributions such as materials, facilities, services, studies, supplies, and traditional cultural knowledge, if the Secretary of the Army determines that the in-kind contributions will facilitate completion of the study. This aspect of the provision acknowledges the important contributions Tribes can make, and enhances the ability of Tribes to collaborate with Army Civil Works. And, finally, the section indicates that any cost sharing agreement for a study shall be subject to the ability of the Tribe to pay. These ability to pay rules are under development.

The Corps' Institute for Water Resources recently published a report entitled *Tribal Partnership Program: Issues Relevant to Working with Native Americans and Alaska Natives on Section 203 Studies*. A copy of this report has been provided to the Committee for information. The report covers cooperating with other Federal agencies, policy and implementation issues, opportunities to work with Tribes, program management issues, and future needs.

Section 208 of WRDA 2000 provides the Corps with the discretionary authority to rebury repatriated remains on lands under their jurisdiction and also provides the authority to transfer those lands to Tribes for their use as cemeteries. In May 2001, the Corps Headquarters issued guidance directing Corps Commanders to immediately begin the process of identifying suitable lands at Civil Works projects for the reinterment of Native American remains originally or inadvertently discovered on project lands, and which have been rightfully claimed by a lineal descendant or Indian tribe. The guidance also states that the Corps will work with the Bureau of Indian Affairs in those circumstances where Tribes or lineal descendants request that reburial areas be transferred to them for use as a cemetery. Recovery, preparation and reburial costs will be performed at 100 percent Federal expense.

Training

Through training, Army Corps of Engineers senior leaders are becoming better informed and more highly sensitized to Indian Affairs. New Commanders for Corps districts and divisions are required to attend a New Commanders Course. A part of the course has been developed to focus on working effectively with Indian Nations, and provides information on historical developments, Tribal sovereignty, legal requirements, and recommendations for effective consultation with Tribal representatives, governments, and communities.

In the past five years, approximately 500 Corps employees (environmental scientists, resource managers, operations specialists) have attended a 40-hour training session on cultural resources, which includes eight hours of training related to the Native American Graves Protection and Repatriation Act.

The Corps St. Louis District has developed training entitled *Native American Cross-Cultural Awareness Workshop*. The class covers legal definitions,

Indian/non-Indian relations, cultural awareness, laws, regulations, executive orders, and policies. The workshop is designed to provide a basic legal and historical framework for the unique relationship between Army Civil Works and Indian Nations.

In Alaska, the District Alaska Native Liaison Office, in cooperation with other Federal agency liaisons, created a two-day Alaska Native Historical and Legal Workshop for Federal employees. In the past year and a half, the Federal Alaska Liaison team has trained over 400 Federal employees in Alaska, including over 150 Corps employees, 73 of whom are involved in Army Civil Works activities. The training sessions have received very positive reviews from attendees and the course is now endorsed by the Federal Executive Administration as required for any new Federal employee working in Alaska.

In April 2002, a member of my staff, the District Engineer from Walla Walla District, and twenty members of his staff attended a *Native American Cultural and Natural Resources Management Workshop* hosted by the Confederated Tribes of the Umatilla at Indian Lake, Idaho. This "experiential" workshop is a new approach to training in that the participants develop personal understandings of Tribal values and issues by living, for a week on the reservation in a teepee camp. In addition to talks and dialogues around camp fires, Corps staff participated in setting up and maintaining the camp, making traditional tools, learning about the Tribe's world view, the importance of the earth and its life forms, and how to work together as a Tribal community, in snow, wind, and sun. Both the Tribe and Corps staff agreed that the workshop was a tremendous success. Additional workshops are being planned.

Protection of Sacred Sites and Lands

Now I would like to talk about several initiatives that relate directly to the protection of sacred sites and lands.

In June 1998, the Corps issued a Policy Guidance Letter No. 58 (attached) implementing Executive Order 13007, *Indian Sacred Sites*. A "sacred site" is defined as any specific, discrete, narrowly delineated location on Federal lands that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established spiritual significance or ceremonial use. This guidance directs Corps Commanders to accommodate access to, and ceremonial use of, Indian sacred sites by Indian spiritual practitioners. It directs the Corps to avoid adversely affecting the physical integrity of sacred sites, and to maintain confidentiality of information pertaining to such sites. Sacred sites are widely dispersed across the landscape. They can include burial grounds, springs, mountains, caves, rock shelters, tipi rings, rock rings, petroglyphs and pictographs, ground figures, and places on public lands where spiritual activities have occurred, are occurring, or could occur in the future. Corps Commanders are directed to initiate consultation for activities that may affect sacred places. The guidance also explains that ceremonial use may include the collection of plants, the clearing of habitat, the gathering of animal parts or feathers and other types of resource-consuming activities. Sacred areas may be closed to the public during particular times of the year. Corps Commanders may consider requests to permanently

close areas to the general public.

Additionally, the Corps has revised its *Planning Guidance Notebook*, to include directives on relations with Indian Tribes that are entirely consistent with the Department of Defense Native American and Alaska Native policy. The regulations controlling activities at hundreds of Corps operating projects contain directives that enhance our relations with American Indian and Alaska Native groups. For example, the Environmental Stewardship Operations and Maintenance Policies, contains sections on Tribal consultation and repatriation that have strong regulations requiring interaction with Tribal members, governments, and communities.

At the regional level, the Alaska District and a number of Corps divisions have developed policies and other resources specific to their missions and Tribal contacts. There are 227 Federally-recognized Alaska Native Communities and many Civil Works activities affect Tribal interests in one way or another. The Alaska District has a full time Native American Liaison, who is Indian, to facilitate consultation, natural and cultural resource protection, and cross-cultural interactions. The Northwestern Division covers the Northwest salmon region, with its 42 Tribes, and the Missouri River basin with 28 (27 with reservations) Tribes. The Division employs a full time Native American Liaison, and each of the Division's five districts also employ Liaisons. Additionally, the Northwestern Division also interacts with 19 aboriginal Tribes with Tribal governments located outside the regional boundaries. A significant portion of their work relates to the protection of sacred sites and lands. The Northwestern Division has developed its own Native American Policy regulation that outlines roles and responsibilities for Corps staff, and also a Guidebook that is a compendium of resources and guidance related to working in Indian Country, including references on the protection of sacred sites and lands.

An important aspect of the protection of sacred sites and lands is the proper curation and management of collections acquired by the Corps over the past 100 years. The Corps St. Louis District Mandatory Center of Expertise for the Curation and Management of Archaeological Collections recently completed the *Department of Defense and U.S. Army Corps of Engineers Curation Options Project* which assessed the state of collections, made recommendations for the proper care and rehabilitation of collections, and identified and evaluated potential partnership curation facilities, such as museums, universities, and state-funded institutions that could properly house these important collections. For many years, proper curation of these materials was not integrated into cultural resource programs and their funding. Long-term collections care has, in most cases, been inadequate. The two reports developed by the Corps provide options for addressing this challenge for the benefit of Indian people and our Nation as a whole.

The Corps has amassed one of the largest collections of archaeological materials, currently estimated to be over 140,000 cubic feet in size (approximately 55 truck trailers full). Within the Corps collections, there are estimated to be the remains of 3,660 Native Americans and there are likely thousands of other cultural objects

subject to the provisions of NAGPRA, and that relate to sacred sites and lands. The Corps is working to complete the inventories and assessments required by Native American Graves Protection and Repatriation Act (NAGPRA), and to work with lineal descendants and Tribes to repatriate human remains and associated funerary objects.

The Corps Fort Worth District has prepared a report entitled *Native American Territorial Ranges in the Central Region of Texas* to assist in the management and protection of 25 lakes and 700,000 acres of land (1,100 square miles), including sacred sites and lands. The report, done after consulting with Tribes, provides a reflection of how the Tribes themselves view their own history and territory, and is an important resource to assist with the protection of sacred sites and lands.

Title VI of WRDA 1999 authorized the transfer of specific lands and recreation areas under the jurisdiction of the Army Corps of Engineers to the State of South Dakota and specified Indian Tribes. In moving forward with the implementation of the transfer of lands project, we have undertaken a number of activities to identify and address any issues with sacred sites and other cultural resources on the lands to be transferred. We held quarterly meetings with the affected Tribes, with invitations to participate extended to other interested Tribes. These meetings were for information sharing and issue resolution. The contractor preparing the EIS for the project had a subcontractor who worked solely on cultural resources, including sacred sites. The contractor and Corps cultural resources experts visited each Tribe a number of times to talk to their cultural resources experts and elders to obtain information on sites of significance to each Tribe. We also contracted directly with a couple of Tribes to complete surveys for Traditional Cultural Properties on lands that were being transferred. The prepared reports are treated as confidential information that is not released without specific approval of the tribes. Known information and preliminary determinations of effect for recreation areas that had development plans were shared with all tribes.

Another ongoing effort that could impact sacred sites and lands is the review of the Missouri River Master Control Manual. While we do not have a separate consultation with the Tribes on sacred sites as part of our Master Manual Review and Update, cultural resources, such as sacred sites, are being discussed with the Tribes in a broader context. The Corps is in the process of identifying Traditional Cultural Properties, including sacred sites, and has contracted with some Tribes to undertake this effort.

Example of Sacred Site and Land Protection

Now I would like to briefly discuss an example of the effectiveness and positive efforts underway by the Corps in consultation and cooperation with Indian Tribes to protect of sacred sites and lands, meet the objectives of the NAGPRA.

In November 1991, three sets of human remains were discovered washing out of a creek bank at then Cooper Lake. The remains at site 41DT16 were excavated in December 1991, as the lake levels were rising rapidly. The remains were relocated to their present resting site (cemetery) in July 1992 when then Caddo Chairman Tony

Williams broke ground and reburied those three sets of remains of Caddo ancestors. The area was selected in cooperation with the Caddo Tribe. It was on high ground, below the dam and located near the new Corps Lake Office so that it would not be inundated and the area's security would not be an issue.

In 1997, we renewed the dialogue with the Caddo Tribal Council concerning repatriation and reburial of Caddo remains. In August 1997, Caddo Tribal Council members, the NAGPRA Coordinator, and representatives from the Fort Worth District and the project office met at the site to define the boundary of proposed permanent reburial site, as well as the layout, materials, colors and manner for future reburials at the site. The plan called for minimum disturbance of the site in the process of preparing the circle, divided into quadrants, and the split rail fence to surround the site. The construction of the site was completed in December 1998. At a June 1999 meeting at Cooper Lake between members and representatives of the Caddo Nation, NAGPRA coordinator, and Fort Worth District, staff discussed issues related to responsibility, security and use of the reburial area. It was decided that security of the site was provided by its proximity to the Corps Project Office and that entrance to the area could be regulated from there.

The evening of September 5, 2001, Colonel Gordon Wells, Fort Worth District Commander, and representatives of Operations and Planning Divisions sat down to share a meal with Chairwoman LaRue Parker and other Elders and members of the Caddo Nation. On September 6, 2001, we came together to officially dedicate this area for its special use as a final resting place for Caddo ancestors from the northeast part of Texas. Colonel Wells and Chairwoman Parker conducted the ceremony. Caddo Elders performed the blessing and with smoke from a cedar fire made 'Kun 'Hah 'Yuu 'Nah ready as a place for the ancestors remains and spirits to come home and rest. Chairwoman Parker presented the Cooper Lake staff with a Caddo Nation flag. A flagpole has been erected and the flag will fly when ceremonies of repatriation and reburial take place.

Solutions for Effective Protection of Sacred Sites and Lands

Protection of sacred sites and lands can be facilitated by:

- Providing leadership to achieve consistency in the Federal approach to Tribal relations
- Effective government-to-government relations
- Pre-decisional consultation and partnerships
- Resource leveraging and integration of Army Civil Works activities with those of Tribes, Federal agencies and non-governmental organizations
- Completion and effective implementation of project-specific historic preservation management plans
- Providing the appropriate level of staffing and resources

Summary

In conclusion, the Army Civil Works Program has, in the past decade, made significant advancements in the areas of sacred sites and lands protection and

coordination with Tribal governments. We must continue to enhance our ability to understand and meet our Federal trust responsibilities, interact with Indian people on a government-to-government basis, and ensure that proper consultation occurs before key decisions affecting Indian people, are made. By living up to our responsibilities as trustees for Indian people, we will be better able to support the economic development and education goals of the President, and to protect the sacred sites and lands that represent the history and the spirituality of Indian people.

Faith Spotted Eagle, a member of the Yankton Sioux Tribe, and member of the women's Braveheart Society, has been quoted in the press as saying "Protection of our sacred sites is one of the most important and heartfelt priorities for Indian communities". We have heard similar sentiments from Indian people throughout Indian Country. We must continue to seek to understand this perspective and sentiment, and work with Indian people to find acceptable solutions to sacred site and land protection challenges.

That concludes my statement. I would be pleased to answer any questions you might have.

Testimony Submitted by
 Pemina Yellow Bird
 Mandan, Hidatsa, and Arikara Nation
 Ft. Berthold Reservation, North Dakota

DaSKAshas. Mabeedzagidz. Nawah. In the languages of the Mandan, Hidatsa and Arikara Nation, I have just greeted you and said, "Today is a good day." And on behalf of our People, Agu Wa' Guxdish, I greet you like a relative, in a respectful way. My name is Pemina Yellow Bird, and I want to thank you, the other members of the Senate Committee on Indian Affairs, and your staff for responding to our Coalition's request for today's important hearing concerning the protection of sacred and cultural places here in our homelands. The testimony we submit this morning will be augmented by written comment in a separate document.

On this good day, Agu Wa' Guxdish, I am here to talk about our Nation's *urgent, unmet need* to preserve and protect our People's irreplaceable sacred places all along Adiba Waduxte, which means Mysterious or Holy Grandfather, one of our Peoples' names for the Missouri River.

The people of the Mandan, Hidatsa and Arikara Nation have occupied both banks of our Grandfather's entire length since time immemorial. During the long occupation of our aboriginal homelands, our ancestors established thousands of earthlodge village sites, burial grounds, hunting camps, and battle sites, and made daily use of ceremonial and other prayer areas, as well as areas where our medicines grow. His waters sustained life for our People and for the abundant fish, game and crops we survived on; his banks were lined with the heavy timber we used for our earthlodge homes, and his bluffs and terraces provided all we needed to build our homes, plant our productive gardens, and sustain an exceedingly good way of life for our People for many, many millennia. The River sustained life for many other Nations of Indigenous Peoples, as well, and our people traded the produce from our abundant gardens with these tribes and others from as far away as the Gulf of Mexico and the Pacific Ocean. We had a good life, then, a life that was guided and directed by a living spirituality that is inseparable from the life of the River itself.

Holy Beings, sent to help our Peoples, emerged from and returned to our Grandfather, and the teachings left with us by these Holy Beings still guide, nurture and sustain our Nation today. Many of the sacred places we are fighting to preserve were actually visited by these Holy Beings, central teachers for our Nations, whose legacy and purpose are identical to that which Jesus Christ holds for millions of Christians around the world. To see the destruction, disrespect and disappearance of these places which hold such great sacred value for us has been heartbreaking, and today we are here to tell you of the threats to these critical places.

In a landmark study published in 2000 by the World Commission on Dams, a project of the United Nations, U.S. Bureau of Reclamation archeologists Kimball Banks and J. Signe Snortland compiled the following facts:

- * The Missouri River is the longest drainage in North America, as it encompasses over half a million square miles.
- * The passage of the 1944 Flood Control Act resulted in the construction of seven federal dams on our Grandfather, and each one has destroyed places sacred to our People, and all of them continue to have destructive impacts to remaining sacred places and lands.

- * Prior to dam construction, reconnaissance surveys recorded over 800 archeological and historic sites in the Dakotas, and 90 major archeological excavations have recovered over one and a half million items of tribal sacred and cultural property.
- * Modern, intensive pedestrian surveys of the reservoirs indicate that the pre-dam surveys found only 1/4 to 1/6 of cultural resources discovered to date. Whereas the River Basin Survey recorded 800 historic sites prior to the construction of the dams, the US Army Corps of Engineers estimates that over 3,000 historic sites have now been recorded. Moreover, archeologists working on Missouri River cultural resources have estimated that if complete new surveys were conducted on all Corps-managed Missouri River lands, five to six times more (an estimated 15,000 to 18,000) historic sites could be identified and evaluated for inclusion in the National Historic Register.
- * Presently, reservoir and downstream river banks hold inundated, eroding and endangered sacred places that are the material record of the Arikara, Mandan and Hidatsa tribes and their ancestral legacy. These historic properties represent a unique aspect of the cultural resources on the Missouri River: these villages are found only in the Missouri River drainage system. Managing these non-renewable sacred and cultural resources is an ongoing financial, legislative and cultural challenge for federal agencies.
- * A total of 556 earthlodge village sites have been identified along the Missouri River in the Dakotas. In both North and South Dakota, some of these villages have been designated as state or local historic sites, adding somewhat to their protection.
- * Unfortunately, the location of the majority of these sites coincides precisely with most of the dam construction on the Missouri River. Consequently, only a few of these sites remain in a pristine condition and the majority has been adversely affected by dam construction or reservoir operations. Adverse impacts include, but are not limited to, erosion, exposure or inundation due to fluctuating water levels of the sacred places on federal lands surrounding reservoirs.
- * Also impacting our sacred places is the erosion or inundation on tribal, state or private lands downstream due to water releases from the reservoirs, impacts which take a toll on our sacred places located on lands not protected by federal preservation law unless they are fortunate enough to be the location for a project requiring a federal permit or federal dollars.
- * Further impacts to our sacred places include destruction due to construction or development activities, recreation or tourism activities, agricultural or grazing uses, and looting.
- * Increasingly, looters and off-road vehicles, (especially boat traffic), damage and steal from our sacred places on federal lands on the Missouri River. Because of the wealth and density

of ours and other tribes' material and sacred property embedded in Missouri River lands, especially our earthlodge village sites and nearby burials, our sacred places and cultural resources are a prime target for looters, especially when low reservoirs reveal sites exposed by inundation and erosion. Looting and vandalism is increasing, and tribal monitors have caught repeat offenders red-handed, who travel along the shoreline in their fishing boats, leaving them to pile up artifacts and items from burials onshore, then returning down the shoreline to load their piles of our sacred and cultural property into their boats. Most looting occurs at night, in very isolated places, and the Army Corps has not made funds available to monitor these isolated sacred places to protect them from looting, despite repeated tribal requests that they do so.

- * Planners for the celebration of the Lewis and Clark Bi-Centennial tell us we can expect up to 30 million visitors to our river, a thought which fills us with dread when we think of our vulnerable and exposed sacred and cultural places. When I think of millions of tourists driving on and camping at the few places where our medicines can still be found, of them floating past open and exposed burials in collapsed cutbanks in fishing boats and canoes, many of whom will be in complete ignorance of existing statutory protection and who thus may think it's perfectly fine to grab a souvenir to take back home, it makes me just want to find a spot on Adiba Waduxte's banks to sit down for a good cry.
- * To address the issue of protecting sacred places in the face of all those proposed visitors, tribes have repeatedly asked the Omaha District ACE to create a federal, state and tribal Inter-Agency Task Force whose sole purpose would be to undertake a public education process defining looting and legal sanctions against it, to create plans where tourists would be "channeled" away from vulnerable, endangered sacred places, to ensure that all archival material containing information relative to the location of sensitive places is restricted and protected, and to have in place viable enforcement policies. As it stands now, rangers and wardens who work for the Army Corps, often the only personnel near these isolated sacred places, do not have the authority to detain or arrest looters, or to confiscate their equipment. The creation of the Task Force has not been done, yet the celebration begins next year and we are running out of time.
- * "Federal funding and the budget process is a management issue because it determines the federal effort to protect or mitigate" endangered sacred places, the study goes on to say. "Although federal laws and regulations require federal land-managing agencies to properly manage cultural resources, no two agencies are alike" and protection for our sacred places is directly proportionate to the priority given them within a particular agency. The record clearly shows the level of priority our sacred places have been given by the Omaha District of the Army Corps of Engineers.

The record that I refer to for our purposes today is the Master Manual's Draft Revised Environmental Impact Study (RDEIS) recently published as the Northwestern Division of the U. S. Army Corps of Engineers continues to develop an updated plan for the management of the

mainstem dam system they built on the Missouri River. It is a very large document, two volumes, each several inches thick. It's a large document, but even a cursory reading of it will show that there's no room for our Tribes or our concerns, as virtually every issue raised by Tribes throughout the EIS process was avoided or ignored by the Corps, by declaring (1) they had done enough to satisfy federal laws where Tribal issues are concerned, (2) that issues the Tribes raised were not part of their project's purpose, or (3) that they would act on Tribal concerns when funds became available, which they never seem to do.

The RDEIS is weakest in its analysis of impacts to tribal sacred and cultural places. Models used are flawed and simply fail to consider all impacts to our sites. Scarce data offered for our consideration in the RDEIS are inconclusive, meaningless, confusing and inconsistent. Instead of the useful guidance needed by tribes to make a choice among the proposed alternatives, twenty year old, incomplete survey data are offered to us for review. Archeological data, particularly on constantly-shifting, heavily impacted Missouri River soils, have a shelf-life of eight to ten years, and must be replaced with updated, Class III pedestrian surveys to be useful to land managers and tribes. We can't protect that which we are unaware of, Agu Wa Gux Dish, which is why our Nation has made repeated requests for the completion of new surveys before we can consult with the Army Corps on any action it proposes, not the least of which is a new Master Manual, a management document we'll all have to live with for decades.

Due to the paucity of accurate and useful data concerning our sacred places, our Nation requested a Supplemental Environmental Impact Study, to conduct new surveys which could identify the tens of thousands of additional sites today's archeologists expect to find. At a recent Master Manual Summit between the Army Corps and Tribes, General David Fastabend informed Chairman Hall that our request was denied because he felt the Army Corps had enough information to make their decision and did not require another study. Yet the information they do give us contains some startling statements:

- * A recent study (actually, it's 13 years old) of 12 archeological sites on bluff tops adjacent to Lake Sakakawea, Lake Oahe, Lake Francis Case, and Lewis & Clark Lake measured bank recession over a period of 50 years using historical aerial photos (Ebert et al., 1989). This study found a steady rate of erosion averaging 8.2 horizontal feet per year at these sites. In some areas, 25 per cent or more of this shoreline recession may be directly attributable to frost action. Extreme high water or storm events can also cause sudden and dramatic shoreline slumping. The average annual erosion at all the Mainstem Reservoir System lakes is estimated at between 1 and 2 square miles, resulting in the loss of 40 to 80 sites per year.
- * At the Master Manual Summit meeting, tribes noted that the overall tone to cultural resource discussions within the RDEIS implied that the Corps' management of the River will continue to have an acceptable levels of impacts to our sacred and cultural places. Our Nation, in particular, objected to this tone, and asserted that the loss of 40 to 80 sites per

year *is not acceptable to us*, and noted that at this rate of loss, within 20 years 1,600 more sites will have disappeared from the face of the Earth. Within another 20 years, we stated, there will be no trace of our Nation's millennia-long occupation of our homelands along the shores of our Adiba Waduxte.

- * A member of the Master Manual Team responded by saying that the study had been misquoted, and that the rate of loss was 40 to 80 sites every ten years, not every year. That meeting took place on April 16 of this year, and at that time our Nation asked to be sent a copy of that report to review, and though we have made two subsequent requests, we still have not received a copy of the report. And even if it's true that the Army Corps published erroneous information in their RDEIS, and the rate of loss is calculated at 40 to 80 sites every ten years, that level of loss is still unacceptable to us.
- * Not until 1978 did the Omaha District begin to utilize district resources to stabilize shorelines to preserve and protect our Nation's sacred and cultural resources. Since then, a total of \$1,933,000 has been spent on shoreline stabilization for a total of 19 sites out of an estimated 3,000 known sites on project lands. This amount must be compared to the millions that have been spent on developing analysis models to determine impacts to fish and wildlife populations for the RDEIS alone. Moreover, according to the archeological staff at the Omaha District, the stabilization and protection of those 19 sites reflects only their perceived high archeological value, and not the spiritual and cultural significance they hold for our Missouri River tribes.
- * On January 9, 2002, the National Academy of Science published findings of their two-year study, *The Missouri River Ecosystem: Exploring the Prospects for Recovery*. The findings of this important study tell us that "the River is in serious decline," and what that means to us is that our Grandfather is dying because of the way the Army Corps is managing the River: the fish are dying off - they can't reproduce; the water is full of silt and sedimentation, as well as mercury and lead from the dumping of upstream gold mining waste water. Reservoir levels are at record lows, and huge sections of shoreline are now exposed, which accelerates erosion and looting of our sacred places.

WHAT MUST BE DONE

- * Oversight - the Omaha District has received several letters from the National Council on Historic Preservation, the Environmental Protection Agency, and the National Historic Trust, all of them pointing out deficiencies and even violations of federal law committed by the Omaha District where preservation and protection of our sacred places is concerned. The National Council on Historic Preservation has issued a Letter of Foreclosure on a 1988 Programmatic Agreement concerning our sacred and cultural places the District signed with the State Historic Preservation Officers of Nebraska, South Dakota and North Dakota, because they failed to enact it! Even more astonishing, the District continues to insist the Programmatic Agreement is still in effect, even though a Letter of Foreclosure

has the effect of voiding the Agreement. In addition, within the last two years, as a result of continued complaints from Tribes, the District conducted an internal Peer Review Assessment of its Cultural Resource Program, yet there was very little tribal participation in this Review Assessment of a program which heavily and many times, negatively, impacts tribal interests, and Tribes have not seen any positive actions resulting from this internal Peer Review Assessment.

- * Funding - It has become almost routine for the Omaha District to respond to tribal requests by telling us they can only undertake projects related to our concerns when the funds become available. We know that the protection and preservation of our sacred places is not a high priority within the District, as reflected by the chronic lack of resources committed to this critical issue. A recent visit with staff at the Omaha District resulted in the disclosure of a \$77 million dollar wish-list: with \$77 million, the District could conduct surveys and immediately begin stabilizing the shoreline for hundreds of important sacred and cultural places. We are here to ask you to assist us in obtaining appropriations to make everyone's Missouri River wishes come true, so that our generations to come will have a place to pray, to gather medicines, to walk where their ancestors walked. This request comes with a word of caution, however: any funds appropriated must be specifically earmarked for the stabilization of sacred and cultural places, with appropriate deadlines for expenditure, so that the monies are not diverted or returned because they are not used.
- * Our beloved Adiba Waduxte no longer flows freely within the boundaries of our reservation homelands, Agu Wa' Guxdish, and the vast majority of ancient, sacred places within our boundaries now lie under his waters, forever reversed and stilled. This makes the relatively few places still in existence, where our ancestors once lived and loved, even more precious to us, because *they are all that we have left*. Our need for the life given to us by our Grandfather and our Holy Places is so great that it is not an exaggeration to say that our Nation's revitalization and survival depend on their survival. Those sacred places are all that stand between us as a living, flourishing Nation and the disappearance of our Peoples' long and ancient history alongside the moving, living waters of our precious Grandfather. Flooding us out of our homelands broke our hearts but it did not break our spirits, and the people of the Mandan, Hidatsa and Arikara Nation stand ready to take whatever action we must take to preserve a place to pray for the generations who are coming, because the living and Holy Being who brought our Nations through thousands of years of life is dying, Agu Wa' Gux Dish, and he and our people just want to live. We just want to live.

We DuT Dunst Stut
That's the way things always were
That's they way things are now
That's the way they will always be

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**Statement of
Jimmy Arterberry
On behalf of the Comanche Nation
Before the Commission on Indian Affairs
U.S Senate
Washington, D.C.
June 4th 2002**

Mr. Chairman, Mr. Vice-Chairman and Members of the Committee;

Thank you for the opportunity to speak and be heard on the issue of Protection for Sacred Places, for Comanche people and the First Nations of the Americas.

This violation of Human Dignity and act of desecrating our graves has forever erased the importance of our people's tradition, in gathering to honor our dead. It has forever scarred our customs and can never be corrected.

There are few reasons for our people to gather anymore. The people came on their own to these places. They were not scheduled events. They knew in their hearts, the time to honor our relatives. An inherent gathering of great fondness and respect for our people that have gone on, not a sad event, like today, as a result of these events.

I have an understanding of these things, no wondering, and fact. My Grandfather was moved in 1958. Over 800 burials from this one cemetery were moved to 6 locations. This desecration of graves must stop.

The 1868 Surgeon Generals Policy to "collect Indian crania for scientific study" has only manifested into the many policies that give archeologists authority over people.

~~When a policy allows a profession, such as archeology to have any type of~~ authority over a particular race of people, then we have a racist policy. In this case a racist Federal Policy.

We are Nations of people, whose graves are being desecrated and looted for study by a profession who should be used as a service to the people, not as an authority over people. As Sovereign Nations, we are responsible for our people, including our ancestors, who are dead and buried. We must not allow archeologists authority over our dead.

Archeologist should only be used in a technical capacity, as a service to the people, not an authority.

The Federal Government should only consult with Tribes. Tribes should never be subordinate to State Historic Preservation Officers, or any other State Agency.

All of our burials are sacred places. Disparate treatment suffered by Native Americans because of our race for scientific study in our homeland is an injustice.

I propose that archeologists are to only be used as a service to the Federal Agencies and Tribes.

We must maintain our Government-to-Government relationship.

That is why we are here today, to put a stop to this racist inhuman activity.

A summary time-line of the events leading to the current status of the Cemetery desecration by the Corp of Engineers, Galveston District, Victoria, Texas is as follows.

The Victoria Barge Canal began in the 1950's. In 1980, a feasibility study to proposed navigation improvements to the barge canal occurred, impacting sites. In 1982, the cemetery was recorded during an overall survey of the project area. The Corp of Engineers, Galveston District, used property owned by Dupont Corporation under a real-estate easement, conveying limited rights for activities. In 2000, archeologists began testing to determine National Register Eligibility, because of the Cemetery. In 2001, four burials were excavated and 25 graves were left exposed. The SHPO demanded that all open graves be completely excavated. As a result, more than 80 graves were excavated. Dupont Corporation was the

Party who halted the excavation activities and demanded Native American Tribes be consulted. The Comanche Nation and other First Nations were notified by letter, dated October 12, 2001, for consultation purposes by the Corp of Engineers. On February 12, 2002, the First Nations Officials met with the COE at the Dupont Corporation Clubhouse to discuss the treatment of the graves excavated. Chairman, Johnny Wauqua, of the Comanche Nation, was questioned on the appropriate treatment of the graves, and in response, stated, "No more testing, put our people back".

In May 2002, Comanche Nation Officials met with the Corp of Engineers Officials at the Galveston District Headquarters, Galveston, Texas, for further consultation. After 3 days of consultation with the COE, the Comanche Officials maintained their position on "No further testing on our relatives".

The COE must abide with the wishes of the descendants, in all cases of graves desecrations involving COE Officials.



DEPARTMENT OF THE ARMY
 GALVESTON DISTRICT, CORPS OF ENGINEERS
 P.O. BOX 1934
 GALVESTON, TEXAS 77558-1239

JUL 24 2001

ATTENTION OF:

Environmental Section

Mr. Jimmy Arterberry, THPO
 Comanche Indian Tribe
 P.O. Box 908
 Lawton, Oklahoma 73502

Dear Mr. Arterberry:

The Galveston District, Corps of Engineers, is seeking Indian tribes interested in consulting on the final disposition of Native American human remains and associated funerary objects from archeological site 41V798 in Victoria County, Texas. Site 41V798 is a Late Archaic through Paleo-Indian cemetery site located on private property adjacent to the Victoria Barge Canal near Bloomington, Texas. Over 70 Native American burials and an undetermined number of associated funerary objects dating roughly between 2,500 and 8,500 years ago were recovered from this site during recent investigations conducted by Galveston District in conjunction with widening and deepening of the Victoria Barge Canal. The location of the site is shown on the enclosed map (Enclosure 1).

The prehistoric cemetery and all of the archeological collection recovered from the site are privately-owned by E.I. Dupont de Nemours, Inc. However, Galveston District is assisting the Dupont Corporation in communicating its intent to consult with Indian tribes expressing an association or cultural affiliation with the site. This consultation effort is focused on determining the eventual disposition of the Native American human remains and funerary objects in a manner consistent with tribal wishes and traditions. Preliminary analysis of the recovered remains and associated objects has been unable to identify any extant Indian tribe with cultural affiliation to the site or objects in the collection. We are hoping to identify such a group with this inquiry of all Federally-recognized tribes with any historic or prehistoric presence in or near the boundaries of Galveston District. Other tribes who have been similarly contacted are listed at the end of this letter. (Enclosure 2).

In advance of preparation of a detailed inventory of the collection, which is expected to take several months, we are available at any time to describe and discuss

-2-

the collection. In addition, we would be happy to arrange your examination of the collection at your convenience. Please contact Ms. Janette Stokes at the above address, by telephone at 409/766-3039 or by e-mail at Janette.S.Stokes@usace.army.mil. If I may be of assistance in any way, please don't hesitate to call me at 408/766-3001.

Sincerely,

Nicholas J. Buechler
 Nicholas J. Buechler
 Colonel, Corps of Engineers
 District Engineer

Enclosures

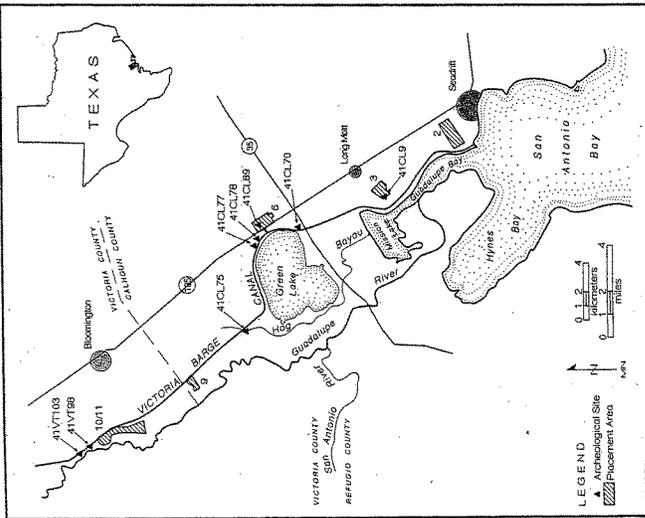


Figure 1. Project location map.

IDENTICAL LETTER SENT TO:

Alabama-Coushatta of Texas
 Ms. Debbie Thomas, Historic Preservation Officer
 Alabama-Coushatta Tribe of Texas
 Route 3, Box 640
 Livingston, Texas 77351

Alabama-Quassarte Tribal Town
 Ms. Renee Coates, Tribal Chair
 Alabama-Quassarte Tribal Town
 323 W. Broadway, Suite 300
 Muskogee, Oklahoma 74401

Ms. Esther Holloway, NAGPPA Coordinator
 Alabama-Quassarte Tribal Town
 323 W. Broadway, Suite 300
 Muskogee, Oklahoma 74401

Mr. Alan Cook, Historian
 Alabama-Quassarte Tribal Town
 323 W. Broadway, Suite 300
 Muskogee, Oklahoma 74401

Coushatta Tribe of Louisiana
 Mr. Lovelin Foncho, Chairman
 Coushatta Indian Tribe
 P.O. Box 818
 Eiton, Louisiana 70532

Ms. Marie Gудry
 Social Services Program Coordinator
 Coushatta Indian Tribe
 P.O. Box 818
 Eiton, Louisiana 70532

Mr. Ieland Thompson
 Cultural Resources Coordinator
 Coushatta Indian Tribe
 P.O. Box 967
 Eiton, Louisiana 70532

Caddo Indian Tribe of Oklahoma
 Ms. LaRue Parker, Chairman
 Caddo Indian Tribe of Oklahoma
 P.O. Box 66
 Einger, Oklahoma 73008

Encl

Encl

Ms. Ellen Bigrope
Mescalero Apache Tribe
P.O. Box 227
Mescalero, New Mexico 88340

Tonkawa Indian Tribe
Mr. Donald Patterson, President
Tonkawa Tribe of Indians of Oklahoma
P.O. Box 70
Tonkawa, Oklahoma 74653

Mr. Anthony Street, NAGPRA Coordinator
Tonkawa Tribe of Indians of Oklahoma
P.O. Box 70
Tonkawa, Oklahoma 74653

Wichita and Affiliated Tribes
Mr. Gary McDams, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, Oklahoma 73005

Mr. Virgil Swift, NAGPRA Coordinator
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, Oklahoma 73005

Mr. Hugh Charleton
Plant Environmental Manager
Dupont Mulsco Victoria Plant
P.O. Box 2626
Victoria, Texas 77901

James E. Bruseth, Ph.D.
Deputy State Historic
Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Mr. Bobby Gonzales, NAGPRA Coordinator
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, Oklahoma 73009

Mr. Robert Cast, Historic Preservation Officer
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, Oklahoma 73009

Choctaw Nation of Oklahoma
Mr. Gregory E. Pyle, Chief
Choctaw Nation of Oklahoma
Drawer 1210
Durant, Oklahoma 74702

Mr. Terry Cole, NAGPRA Coordinator
Choctaw Nation of Oklahoma
Drawer 1210
Durant, Oklahoma 74702

Comanche Indian Tribe
Mr. Johnny C. Wauqua, Chairman
Comanche Indian Tribe
P.O. Box 908
Lawton, Oklahoma 73502

Mr. Jimmy Arterberry, THPO
Comanche Indian Tribe
P.O. Box 908
Lawton, Oklahoma 73502

Delaware Nation of Western Oklahoma
Mr. David Scholes, NAGPRA Coordinator
Delaware Nation of Western Oklahoma
P.O. Box 825
Anadarko, Oklahoma 75005

Kickapoo Traditional Tribe of Texas
Mr. Jose Martinez, Housing Director
HC 1, Box 9700
Eagle Pass, Texas 78852

Mescalero Apache Tribe (and Lipan Apache)
Ms. Sara Misquez, President
Mescalero Apache Tribe
P.O. Box 227
Mescalero, New Mexico—88340—



DEPARTMENT OF THE ARMY
 GALVESTON DISTRICT, CORPS OF ENGINEERS
 P.O. BOX 1239
 GALVESTON, TEXAS 77583-1239

SENT TO
 ATTENTION OF

October 12, 2001

Environmental Section

Mr. Johnny C. Wauquaa, Chairman
 Comanche Indian Tribe
 P.O. Box 908
 Lawton, Oklahoma 73502

Dear Chairman Wauquaa:

The Galveston District, Corps of Engineers, would like to bring you up to date on our consultation efforts regarding Native American human remains and associated funerary objects from archeological site 41VT98 in Victoria County, Texas. The following tribes are being notified because of their prehistoric or historic association, or an expressed interest in the area associated with site 41VT98. They will continue to be contacted on all issues concerning this site unless they indicate otherwise.

- Alabama-Coushatta of Texas
- Alabama-Quassarte Tribal Town
- Coushatta Tribe of Louisiana
- Caddo Indian Tribe
- Choctaw Nation
- Comanche Indian Tribe
- Mescalero Apache Tribe
- Tonkawa Indian Tribe
- Wichita and Affiliated Tribes
- Poarch Band of Creek Indians

Galveston District is proposing that a consultation meeting be held sometime in the near future, in cooperation with Dupont Corporation, the landowner of archeological site 41VT98. To help us with this consultation meeting Galveston District has requested the assistance of Ms. Roberta Hayworth, the Native American Coordinator for the St. Louis District, Corps of Engineers. She will be contacting you to confirm your interest in attending a meeting, scheduling a date, and facilitating your travel arrangements.

We would like to take this opportunity to provide more details on the archeological investigation at the site in advance of the upcoming meeting. Site 41VT98 is located on the banks of the Victoria Barge Canal, a man-made navigation channel first constructed in the late 1950s to improve barge access to the Port of Victoria from the Gulf Intracoastal Canal. In the early 1980's, Galveston District began a series of cultural resource investigations in conjunction with a feasibility study of proposed navigation improvements to the barge canal. The Victoria County Navigation District and the West Side Calhoun County Navigation District are local sponsors of this ongoing project. Cultural resource investigations continue today and are being conducted to fulfill our responsibilities under Section 106 of the National Historic Preservation Act. Site 41VT98 was initially recorded by Galveston District during a survey of the overall project area in 1982. It is located on property owned by Dupont Corporation and used by Galveston District in accordance with the terms of a real estate easement conveying limited rights for activities related to construction and operation of the navigation channel.

Preliminary investigations undertaken by Galveston District in 1989 indicated that the site had a deep, intact midden suggestive of a long history of occupation. Archeological testing to determine National Register eligibility was begun in the fall of 2000 in advance of anticipated impacts to the site from channel widening and deepening. In March 2001, numerous prehistoric burials were encountered in a block excavation unit at the site. This discovery was unanticipated, as no indication of an extensive prehistoric cemetery had been found during prior investigations.

Coordination of the discovery with the Texas State Historic Preservation Officer resulted in a decision to limit excavation to those units already opened and to remove burials from the open units in an effort to prevent further damage from erosion, exposure, and vandalism. In all, a total of 72 interments, dating roughly between 2,500 and 7,000 years ago, were recovered. An unknown number of additional interments remain in the surrounding unexcavated site area. To protect the site and remaining interments, the excavation unit was carefully backfilled, and Dupont erected a fence around the site's perimeter. No further excavation or disturbance of the site is planned.

The human remains and associated artifacts have been transported to Corpus Christi, Texas, for temporary storage in the office of Galveston District's archeological contractor. The contractor has been instructed to halt any cleaning of the remains and to keep the interments separated by individual or group of individuals as they were found at the site. No analysis is being conducted on any of the human remains or artifacts from the site. An inventory of all remains and artifacts removed from the site is currently in preparation. In an effort to keep the handling of the remains to a minimum, only a preliminary inventory based primarily on field notes is being prepared for all

human remains and associated funerary objects. All non-mortuary midden materials removed from the site are being cleaned, sorted, and inventoried in an effort to provide a thorough non-analytical inventory. Copies of both inventories will be made available as soon as they are completed.

Galveston District's purpose in initiating consultation with interested tribes at this time is twofold. First, Galveston District recognizes that we have a responsibility to consult with any tribe attaching cultural or religious significance to the site in accordance with current rules for Section 106 consultation. We hope to elicit tribal input concerning the types and extent of analysis that may be acceptable for materials removed from the site. Second, we have been asked to assist Dupont Corporation in an effort to identify Federally recognized tribes interested in the treatment and final disposition of the human remains. Dupont has expressed a recognition of the inherent religious and cultural significance these remains hold for Native American Indian tribes and wants any decisions that are made to include tribal input. To support this effort, Dupont has arranged for the assistance of Dr. Anita Sanchez, Consultant/Cross-Cultural Facilitator, who is of Native American and Mexican American descent. Dr. Sanchez will be present at the consultation meeting and is available to discuss the matter with you in advance of the meeting.

The Galveston District wants to emphasize our intent to genuinely consider all concerns and reach a consensus resolution to this complex and sensitive matter. Our goal is to formulate a plan of action to complete analysis and reporting of the site in a manner that is acceptable to interested Native American tribes, the State Historic Preservation Officer, and Dupont Corporation. The Galveston District and Dupont Corporation believe that the best way to begin this process is to jointly sponsor a tribal consultation meeting where we can hear your concerns expressed directly. Ms. Hayworth will be contacting you shortly to determine if you are interested in attending a meeting. If so, she will arrange the most convenient meeting date for the group and make travel arrangements for tribal representatives. Ms. Hayworth is also available to answer any questions you have concerning this matter and to keep you fully informed of any developments. She may be reached at 314-331-8833 or at Roberta.Hayworth@mvs02.usace.army.mil. Dupont Corporation's facilitator, Dr. Anita Sanchez, is also available to discuss this matter at (303) 449-5921 or at Sancheztennis@aol.com.

Sincerely,


Leonard D. Waters
Colonel, Corps of Engineers
District Engineer

Copies Furnished (See Page 4):

- Copies Furnished:
- Mr. Jimmy Arberry, THPO
Comanche Indian Tribe
P.O. Box 808
Lawton, Oklahoma 73502
- Mr. Hugh Chariton
Senior Environmental Consultant
Dupont Nylon Victoria Plant
P.O. Box 2826
Victoria, Texas 77901
- James E. Bruseff, Ph.D.
Deputy State Historic
Preservation Officer
Texas Historical Commission
P.O. Box 12278
Austin, Texas 78711
- Mr. Howard W. Hawthorne
Executive Director
Victoria County Navigation District
P.O. Box 2780
Victoria, Texas 77902
- Ms. Roberta Hayworth
Department of the Army
St. Louis District, Corps of Engineers
ATTN: CEMVS-ED-Z (Hayworth)
1222 Spruce Street
St. Louis, Missouri 63103
- Dr. Anita Sanchez
470 Fountain Tree Lane
Boulder, Colorado 80304



DEPARTMENT OF THE ARMY
 GALVESTON DISTRICT, CORPS OF ENGINEERS
 P.O. BOX 1528
 GALVESTON, TEXAS 77583-1528

REF. TO
 ATTENTION, OK

November 5, 2001

Environmental Section

Mr. Johnny C. Wauqua, Chairman
 Comanche Indian Tribe
 P.O. Box 908
 Lawton, Oklahoma 73502

Dear Chairman Wauqua:

The Galveston District, Corps of Engineers, would like to suggest a date for the consultation meeting proposed in our letter of October 12, 2001. After canvassing all of the Galveston District and Dupont representatives, and contacting many of the interested tribes, we have determined that the first dates on which most are available are February 12 and 13, 2002. Please inform Ms. Roberta Hayworth by November 21, 2001 if these dates will work for you. If you have further questions, please call Ms. Hayworth at (314) 331-8833.

Sincerely,

Loyd H. Saunders
 Loyd H. Saunders, Ph.D.
 Chief, Planning, Environmental
 and Regulatory Division

Copy Furnished:

Mr. Jimmy Arterberry, THPO
 Comanche Indian Tribe
 P.O. Box 908
 Lawton, Oklahoma 73502

Mr. Hugh Charlton
 Senior Environmental Consultant
 Dupont Nylon Victoria Plant
 P.O. Box 2626
 Victoria, Texas 77901

James E. Bruseth, Ph.D.
 Deputy State Historic
 Preservation Officer
 Texas Historical Commission
 P.O. Box 12276
 Austin, Texas 78711

Mr. Howard W. Hawthorne
 Executive Director
 Victoria County Navigation District
 P.O. Box 2760
 Victoria, Texas 77902

Ms. Roberta Hayworth
 Department of the Army
 St. Louis District, Corps of Engineers
 ATTN: CEMVS-ED-Z (Hayworth)
 1222 Spruce Street
 St. Louis, Missouri 63103

Dr. Anita Sanchez
 470 Fountain Tree Lane
 Boulder, Colorado 80314



DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1228
GALVESTON, TEXAS 77563-1228

REPLY TO
ATTENTION OF:

DEC 14 2001

Environmental Section

Mr. Johnny C. Wauquia, Chairman
Comanche Indian Tribe
P.O. Box 908
Lawton, OK 73502

Dear Chairman Wauquia:

The U.S. Army Corps of Engineers, Galveston District, requests your attendance at a consultation conference to be held on February 12-13, 2002, at Victoria, Texas, with representatives of the Galveston District, the Texas State Historic Preservation Officer, and DuPont Corporation. This meeting will provide an opportunity for Native American tribes with a cultural affiliation to this area of Texas to discuss archeological site 41VT98 located in Victoria County, Texas. The archeological discovery included Native American human remains and associated funerary objects.

Site 41VT98 is located on property owned by DuPont, thus they have the ultimate responsibility for all remains and artifacts removed from the site. The property on which the site is located is used by the Galveston District in accordance with the terms of a real estate easement conveying limited rights for activities related to construction and operation of a navigation channel called the Victoria Barge Canal. This conference will include a visit to site 41VT98, an overview of the archeological discoveries from the site, a discussion of Galveston District's Section 106 responsibilities for site 41VT98, and treatment of the human remains. It will also begin the consultation process on the final disposition of the remains and funerary objects.

The remains and artifacts removed from the site are located in a lab in Corpus Christi, Texas. If any tribal member would like to view the remains they may visit the lab in Corpus Christi on the second day. Please indicate on the enclosed registration form if you would like to make a visit to the lab. If your tribe has other issues that they would like to discuss at this meeting please inform Ms. Hayworth so they can be added to the agenda.

We invite your tribe to send one tribal council representative or an appointed Historical Preservation representative to participate in this meeting. Travel expenses will be reimbursed for one representative. The tribe may send other representatives at its own expense. DuPont will host a dinner meeting on the evening of Feb. 11 to provide an opportunity for the meeting participants to get acquainted prior to the first session on Feb. 12.

Identical letters sent to the following:

Alabama-Coushatta of Texas

Kevin P. Battise, Chairman
Alabama-Coushatta Tribe of Texas
Route 3, Box 640
Livingston, Texas 77351

Debbie Thomas, Historic Preservation Officer
Alabama-Coushatta Tribe of Texas
Rt. 3, Box 640
Livingston, TX 77351

Alabama-Quassarte Tribal Town

Tarjue Yargee, Chief
Alabama-Quassarte Tribal Town
P.O. Box 187
Wetumka, Oklahoma 74883

Coushatta Tribe of Louisiana

Lovelin Poncho, Chairman
Coushatta Indian Tribe
P.O. Box 818
Eaton, LA 70532

Marie Guidry
Social Services Program Coordinator
Coushatta Indian Tribe
P.O. Box 987
Eaton, LA 70532

Leland Thompson
Cultural Resources Coordinator
Coushatta Indian Tribe
P.O. Box 967
Eaton, LA 70532

Mescalero Apache Tribe (and Lipan Apache)

Sara Misquez, President
Mescalero Apache Tribe
P.O. Box 227
Mescalero, NM 88340

Donna Sten-McFadden, THPO
Mescalero Apache Tribe
P.O. Box 227
Mescalero, NM 88340

Tonkawa Indian Tribe

Donald Patterson, President
Tonkawa Tribe of Indians of Oklahoma
P.O. Box 70
Tonkawa, OK 74653

Anthony Street, NAGPRA Coordinator
Tonkawa Tribe of Indians of Oklahoma
P.O. Box 70
Tonkawa, OK 74653

Wichita and Affiliated Tribes

Gary McAdams, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Virgil Swift, NAGPRA Coordinator
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Poarch Band of the Creek

Eddie L. Tullis, Chairman
Poarch Band of Creek
5811 Jack Spring Road
Atmore, AL 36502

Caddo Indian Tribe of Oklahoma

LaRue Parker, Chairman
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, OK 73009

Bobby Gonzales, NAGPRA Coordinator
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, OK 73009

Robert Cast, Historic Preservation Officer
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, OK 73009

Choctaw Nation of Oklahoma

Gregory E. Pyle, Chief
Choctaw Nation of Oklahoma
Drawer 1210, 18th & Locust Street
Durant, OK 74702

Terry Cole

NAGPRA Coordinator
Choctaw Nation of Oklahoma
Drawer 1210, 18th & Locust Street
Durant, OK 74702

Comanche Indian Tribe

Johnny C. Wauqua, Chairman
Comanche Indian Tribe
P.O. Box 908
Lawton, OK 73502

Jimmy Arterberry, THPO

Comanche Indian Tribe
P.O. Box 908
Lawton, OK 73502

Bill Day, THPO
Fourch Band of Creek
128 Olive Street
Pineville, Louisiana 71380

Hugh Charlton
Senior Environmental Consultant
DuPont Nylon Victoria Plant
P. O. Box 2626
Victoria, Texas 77901

James E. Bruseth, Ph.D.
Deputy State Historic
Preservation Officer
Texas Historical Commission
P. O. Box 12276
Austin, Texas 78711

Howard W. Hawthorne
Executive Director
Victoria County Navigation District
P. O. Box 2760
Victoria, TX 77902

Roberta Hayworth
Department of the Army
St. Louis District, Corps of Engineers
ATTN: CEMVS-ED-Z (Hayworth)
1222 Spruce Street
St. Louis, MO 63103

Anita Sanchez, Ph.D.
470 Fountain Tree Lane
Boulder, Colorado 80304

Enclosed you will find a registration form to be completed and returned to the address listed, directions to the meeting, a list of hotels in Victoria, information on travel expenses, and a tentative agenda. We ask that you contact Ms. Roberta L. Hayworth at (314) 331-8833, if you have questions about your travel arrangements or the agenda. We look forward to meeting and exchanging information with tribal representatives.

Sincerely,

Leonard D. Waterworth
Colonel, Corps of Engineers
District Engineer

99

Enclosures

Copy Furnished with encls:

Mr. Jimmy Arterberry
Tribal Historic Preservation Officer
Comanche Indian Tribe
P. O. Box 908
Lawton, OK 73502

Advisory
Council On
Historic
Preservation

The Old Post Office Building
Washington, D.C. 20540
Telephone: 204-7241

POLICY INTERPRETATION
MEMORANDUM 89-1

Nigel J. ...

TREATMENT OF HUMAN REMAINS AND GRAVE GOODS

Issued: December 1, 1988

The purpose of this memorandum is to provide guidance on how to interpret the statement on the treatment of human remains and grave goods adopted by the Council on September 27, 1988 (Attachment A), primarily in the context of Section 106 review.

Definitions

Before beginning this discussion, we need to provide operational definitions of some of the key terms used in the policy statement. For purposes of this memorandum:

- The term "human remains" is taken to mean the remains of deceased human beings, including but not limited to bone, teeth, mummified flesh, burials, and cremations.
- The term "grave" is taken to mean the pit, tomb, or other facility in which human remains have been interred.
- The term "grave goods" is taken to mean artifacts or other material remains that can plausibly be interpreted as having been intentionally included in a grave as some part of the interment process.
- The term "descendants of the dead" is taken to mean any group, community, or organization that may be related culturally or by descent to the deceased persons represented by human remains, for example, a Native Hawaiian group that may be descended from individuals interred during Hawaiian prehistory, or a Christian American community that may be related to individuals interred in an early historic mining town.
- The term "scientific research value" is taken to mean the value of human remains or grave goods in the study of specific research topics of importance to such scientific disciplines as archaeology, physical anthropology, human biology, or medicine.

Discussion

The policy statement articulates six interrelated points, each of which will be discussed below with specific reference to the Section 106 process.

- Human remains and grave goods should not be disturbed unless required in advance of some kind of disturbance, such as construction.

This statement indicates a clear preference for leaving graves undisturbed unless some change agent can be demonstrated, changes in land use patterns, or other circumstances that would require the Section 106 review we should seek preservation in place of sites known or thought likely to contain graves wherever this is feasible and prudent. In some areas, where graves may occur in virtually any habitation site, this may mean seeking preservation in place as the treatment of choice as a matter of course. This, of course, has been standing Council policy for many years (cf. Treatment of Archaeological Properties, Principle VII, 1980).

The policy statement undergirds the General Counsel's opinion that the exception to the Criteria of Adverse Effect set forth at 36 CFR § 600.9(G)(1) should not be applied to the excavation of sites known or strongly suspected to contain graves (Attachment B). We should not readily concur in the excavation of graves if there are likely to be reasonable ways of preserving them. Preservation should be in the context of a Memorandum of Agreement that sets out the mechanisms for minimizing or mitigating such effects.

In applying this policy, we need to be sure that its implementation will really lead to preservation. It will do no good to ensure that a logging road will be built through a cemetery if the road is an access route for people who buy the lots and build houses. We will also need to think about the circumstances under which excavation of sites and areas outside the boundaries of a construction project are appropriate. Nothing in the Council's policy statement changes our position on this matter as a matter of course we should consider both the direct and indirect effects of intertakings. Accordingly, it may be entirely appropriate to excavate a site in order to be able to conduct a study, for example, subject to unobtainable vandalism as the indirect effect of nearby road construction.

- Disturbment when necessary should be done carefully, respectfully, and completely, in accordance with proper archaeological methods.

"Careful" disturbance and disturbance in accordance with proper archaeological methods can be taken to mean the same thing. When human remains are disturbed, the work should be supervised by people having appropriate archaeological credentials, and the work should be carried out in accordance with effective contemporary archaeological techniques. Adherence to the policy statement

does not preclude using different kinds of archaeological methods, or different levels of vigor in different situations; it would not be unreasonable to apply under methods in a burial in imminent danger of destruction that might be applied to one whose loss was not imminent.

"Proper archaeological methods" include field recording of the remains unearthed, typically involving photography, field sketches, and the recording of such fundamental data about the deceased as age at death, sex, stature, and evidence of disease or trauma. In rare instances such recording, or some aspect of it (for example, taking photographs) may be so aberrant to the descendants of the dead that it will be inappropriate in any situation. Such situations to standard procedure will need to be negotiated on a case-by-case basis.

"Proper archaeological methods" should not automatically be assumed to include washing bones or treating them with preservatives, particularly where Native American remains are involved. Many Native American groups regard the earth surrounding the bones as part of the body itself, and many regard intervention in the process of decay as interrupting the spirit's return to the earth. If it is anticipated that washing or preservation will be necessary, the descendants of the dead should be consulted beforehand to ensure that this will not be aberrant to them.

The word "respectful" is self-explanatory: when working with human remains, one should maintain a decent respect for the dead. One should also maintain respect for the customs and beliefs of those who may be descended from the deceased, and try to avoid unnecessary conflict with them.

The statement that human remains and grave goods should be disinterred "completely" indicates both that in excavating a burial, one should be careful not to leave pieces in the sidewalls or backfill, and that in excavating a threatened cemetery one should excavate it in its entirety, rather than leaving human remains to be destroyed by whatever change agent prompted the excavation. There will be circumstances, of course, under which one cannot be sure that one has gotten all of a cemetery or other group of graves. For example, if graves are widely dispersed through a tract of land, it may not be feasible, or even technically possible, to find every grave. In such cases, one should try to ensure that disinterred human remains are preserved. Note that this principle applies regardless of the research interests being addressed by an excavation project. The fact that for research purposes one may need to recover only 10% of the burials in a site is not relevant to the need to remove 100% in order to avoid their violation by whatever change agent is involved.

On the other hand, the policy statement does not justify excavation of unburied human remains. The need will result in disturbing only 10% of the cemetery, it is that 10% that ought to be excavated; the policy statement

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does not encourage excavating the complete cemetery in such a case. It is essential human remains and grave goods should be reburied, in consultation with the descendants of the region.

This statement articulates one half of the moral rule to be adhered to wherever feasible, prudent, and in accord with law. The Council clearly prefers reburial of human remains, in consultation with descendants. This policy is broad enough to embrace the delivery of human remains to a museum, but reburial is well. Logically, reburial must be taken to embrace the reburial of cremated remains that might be preferred by descendants -- for example, burial in caskets (e.g. Hawaii) and cremation (e.g. Southern California) -- as well as simple reinterment of bones in the ground.

The policy statement does not define the word "descendants," but we have had an operational definition above for staff use. Experience suggests that it is best to use the word with someone's claim to be descended from a given group of deceased individuals, and to avoid the degenerate into disputes about how much of various kinds of blood the person has, which is often irrelevant to membership in the cultural group that may be involved and often cannot be ascertained in any event. It is recommended that if someone claims to be descended from the person or persons whose remains are being reburied, the claim should be supported by a written statement of human remains. This claim should be supported by a written statement of human remains, and the remains should be deposited in a secure location. This is not to deny that people who really are unrelated to the deceased may on occasion claim spurious relationships in order to advance particular agendas of their own; it is only to say that, practically speaking, in such a case it is probably more practical to let the putative descendant into consultation than to try to exclude him or her.

A question has been raised about whether veterans' groups should be regarded as "descendants of the dead" where the remains of battlefield casualties are involved (e.g. at Saratoga, Gettysburg, or Chatter Battlefield). While we do not believe that the Council had such groups in mind when it issued the policy statement, in the absence of more direct descendants (e.g. actual family members), it would be reasonable to consult with such groups in deciding about the disposal of the remains of war dead.

* Prior to reburial, scientific studies should be performed as necessary to address justified research topics.

This is the other half of the moral rule: the Council clearly favors analysis prior to reburial, provided the analysis addresses "justified research topics."

This statement undergirds our standard practice of trying to ensure that agencies justify the research they intend to do as part of their recovery. It is consistent with the General Accounting Office's 1981 recommendation to

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There will of course be some interest groups that will maintain that analysis is necessary in some cases, while others will insist that analysis in perpetuity is always justified. The Council should be aware of these divergent views. Experience suggests, however, that to insist each and every of the minds can be reached if the parties involved will deal with each other in an open and mutual respect. Where one group or another is unwilling to do this, the Council should insist that the core consulting parties - (the Federal agency, the SHPC and the Council) - should participate in reaching a conclusion. The outcome of the one case of this kind that has thus far been litigated suggests that in such a case, the Council is in a position to reach a decision that in such a case, the capacity of withdrawing legal challenge.

Approved for consistency with Council policy:

Robert D. Bush
Robert D. Bush, Executive Director

12-1-68
Date

Council Board of the Chicanos, et al. v. Virginia Chaux, et al. (C.D. Cal. 1966)
No. CV 87-7979 F.A.B.

The Council that it insist that Federal data recovery projects address justified research questions.

In reviewing data recovery proposals involving the treatment of human remains, the Council should be aware of the following points: 1. The nature of the analysis, or merely to compile a descriptive record. The potential analyst should have some definite set of definable research problems that will be elucidated through conduct of the analysis proposed, and the connection between problem and analytic technique should be clearly laid out.

Logically, the rigor and thoroughness with which the justification for a given research topic should be set forth can vary with the circumstances of the analytic methods proposed. In other words, if one proposes only to make field observations to determine age, sex, stature, etc., one usually need not go into great detail about why this is necessary, such data are applicable to a wide range of research questions, and their collection is not widely regarded as objectionable. Conversely, if one proposes to retain human remains for study in perpetuity, or to submit them to a laboratory for study, these goals will need to be clearly stated, and the justification with reference to specific research questions that cannot be addressed in some other manner.

Scientific studies and reburial should occur according to a definite, agreed-upon schedule.

This policy is clear, and should be carefully addressed in consultation. Schedules should be spelled out in Memoranda of Agreement and other relevant documents. The length of time allowed for analysis depends, of course, on the nature of the remains, the kinds of analysis proposed, the number of bodies involved, and so on. In many cases one year has turned out to be a minimal length of time, but this is by no means an inviolable rule. For example, in cases where the remains are of great scientific interest, it is desirable that analysis can be and is done within the agreed upon schedule.

Where scientific study is of primary importance to the descendants of the dead, and the need for such study does not outweigh the need to respect the concerns of such descendants, special study should occur without prior study. Conversely, where the primary concern is to respect the wishes of the descendants, they should not be reburied, but should be retained in perpetuity for study.

In contrast with the modal rule of reburial after analysis, this final statement permits us to enter into agreements providing for either end of the spectrum - reburial without analysis, and analysis without reburial - and to enter into agreements providing for both ends of the spectrum. The consultation process is obviously the context in which the consulting parties should decide on the precise permutation to employ in a given case.

Advisory
Council On
Historic
Preservation

The Old Post Office Building
1155 Pennsylvania Avenue, N.W., #609
Washington, D.C. 20540

ATTACHMENT A
COUNCIL POLICY STATEMENT

POLICY STATEMENT
REGARDING TREATMENT OF HUMAN REMAINS
AND GRAVE GOODS

Adopted by the Advisory Council on Historic Preservation

September 27, 1988

Gallup, New Mexico

When human remains or grave goods are likely to be removed in connection with a project subject to the National Historic Preservation Act, the National Historic Preservation Act, the consulting parties under the Council's regulations should agree upon arrangements for their disposition that, to the extent allowed by law, adhere to the following principles:

- o Human remains and grave goods should not be disturbed unless necessary in the interest of the advancement of science or the advancement of some kind of disturbance, such as construction;
- o Disturbance when necessary should be done carefully, respectfully, and completely, in accordance with proper archaeological methods;
- o In general, human remains and grave goods should be reburied, in consultation with the descendants of the dead;
- o Prior to reburial, scientific studies should be performed as necessary to address justified research topics;
- o Scientific studies and reburial should occur according to a definite, agreed-upon schedule; and
- o Where scientific study is offensive to the descendants of the dead, and the need for such study does not outweigh the need to respect the concerns of such descendants, reburial should occur as soon as possible. However, the scientific value of human remains or grave goods outweighs any objections that descendants may have to their study, they should not be reburied, but should be retained in perpetuity for study.

Advisory Council On Historic Preservation

The Old Post Office Building 1300 Pennsylvania Avenue, NW, #409 Washington, DC 20004

May 2 1988

Memorandum

To: Director, DCRP
From: General Counsel

Subject: Treating undertakings that exhume human burials as having "no adverse effect" under the regulations.

This is in response to your request for guidance in responding to the state of Maryland, a State in which NCAI expressed concern about treating projects that result in the exhumation of human remains as having "no adverse effect" on historic properties under 36 CFR §200.9(c)(1).

36 CFR § 200.9(c)(1) provides that the effects of an undertaking that includes exhumation be found to be "no adverse effect" only if the undertaking has a historic property of value only for its general contribution to archeological, historical, or architectural research, and when such value can be substantially preserved through the conduct of appropriate research, and such research is conducted in accordance with applicable professional standards and guidelines (emphasis added).

I believe that NCAI is correct in its belief that "a site containing graves cannot be significant (sic) 'only' for its importance in archeological research," although their terminology is not exact. It is important to note that the regulations use the term "value" rather than "significance." "Significance" could be taken to limit consideration to those elements that contribute to the value of the site. The National Register Criteria (36 CFR §60.4) extends only to a property's known or potential ability to yield information significant in history or prehistory. Had 36 CFR §200.9(c)(1) referred to historic properties significant only for their potential contribution to research, it arguably would not be appropriate for the Council to extend the exclusionary language beyond that term.

ATTACHMENT B
GENERAL COUNSEL'S OPINION

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**GALVESTON DISTRICT/DUFONT CORPORATION
NATIVE AMERICAN CONSULTATION CONFERENCE
AGENDA**

<i>Thursday, February 12, 2003</i>				
9:00	Registration			TBA
9:05-9:45	Welcome/Introductions			COV/DUFONT
9:50-9:45	Description of Galveston District			COV
9:45-10:00	Open for comments/questions from tribal members			
10:00-11:00	Site visit			
11:00-12:30	Lunch			
12:30-1:00	Overview of Site			D. Kelsey/AT
1:00-1:30	Open for comments/questions from tribal members			
1:30-2:00	Galveston District Section 106 compliance			TBA
2:00-2:30	SHPO comments			TBA
2:30-3:00	Open for comments/questions from tribal members			
3:00-3:15	Break			
3:15-3:45	Discussion of treatment of remains & future artifact analysis			TBA
3:45-4:00	Close of meeting & adjourn			

By Order: Catherine J. Cook
Tribal members who requested a site visit met at the site.
Cynthia Christ

St. Louis District

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of these backhoe trenches a series of hand-excavated 2 x 2 m units were opened across the site. These were eventually expanded into block excavations in two areas, so that in total 145 sq meters were excavated by hand.

Some of the most important information was recovered from the excavations on the level-top. The deposits in this area occurred in three distinct strata or zones. The uppermost, Zone 1, was a grayish brown soil that formed on the site after the Native American occupation. Beneath it lay Zone 2, a black silty midden or refuse deposit about 80 cm thick that contained numerous artifacts, including stone dart and arrow points and other tools, the debris from their manufacture, pottery fragments, animal bones and shell. A number of hearth features, consisting of concentrations of burned clay and stone, were also present. Based on the styles of the projectile points and ceramics, it is estimated that this zone represents intermittent occupation from about 5000 to 3000 years ago.

At the base of Zone 2 or in the upper portion of Zone 3 five human burials were encountered. All of these were in extended position and occurred at the base of Zone 2 or in distinct pits that originated in Zone 2. Two of the burials contained dart-points and large white shell pendants typical of the Late Archaic period, about 2500 years ago. The other three burials may be contemporary, but this has yet to be determined.

Beneath Zone 2 was Zone 3, a brown silty sand that was divided into upper and lower portions on the basis of slight color differences. The upper portion, Zone 3A, contained dart points and other tools of styles dating to the Paleo-Indian period, about 10,000 to 11,000 years ago. The lower portion produced very few artifacts and tested directly on the Pleistocene terrace.

Also present within Zone 3 was an Early Archaic cemetery containing at least 70 human burials in flexed, sitting or bundle positions. Creative pits were also identifiable for many of these burials, the most of them probably originating from a single individual who was entombed several times. These include incised, decorated, and plain burials, and burials that are almost certainly ceremonial rather than functional, weighted hammocks (weights for throwing sticks, which occur in eastern North America, but are not known from the Texas coast), "Waco stokers" (ground-stone objects of unknown use), plummets, flintknapper's foot pits (containing dart points, preforms, flakes, bone and antler tools, sandstone attriders), perforated child teeth, pendant made from freshwater mussel and sunray venus clam shells, beads made from Margaritella and nautilus shells, red and yellow ochre, and asphaltum (natural tar) nodules.

Radiochron dates obtained on samples of bone from four of these burials indicate that this occupation dates to between 7500 and 6500 years ago, during the Early Archaic period. Stylistic information from the artifacts suggests that some of the burials may be even older. Based on the distribution of burials in the excavation units it is estimated that only about 25-30 percent of the cemetery area has been uncovered.

The Buckeye Knoll Site, 41VF98

The Buckeye Knoll site lies on a spur of high ground overlooking the lower Coudaluge River floodplain. This promontory is an erosional remnant of the Pleistocene Bremondian formation, which was deposited about 150,000 years ago during higher-than-modern sea level. During the late Pleistocene sea level fell due to the expansion of continental glaciation and coastal plain streams such as the Coudaluge River downcut their valleys. The Buckeye Knoll site is located in the present Coudaluge valley wall that resulted from this sea level fall. In 1904-10,000 BP, rising early Holocene sea level caused inundation of the valley coastline, resulting in the formation of a large, vegetated wetland at Star Antonio Bay. Since that time the Coudaluge River has deposited sediments that have gradually filled the valley and built a delta into the upper bay.

As indicated by the distribution of archaeological sites on this map of the region, valley-margin settings such as that occupied by Buckeye Knoll were popular locations for Native American campsites. Not all of these sites were occupied at the same time, but many of them would have overlapped in time with some portion of the long occupational sequence at Buckeye Knoll.

The Buckeye Knoll site was first noted by an avocational archaeologist who worked for Dupont when the Victoria Barge Canal was initially excavated in the late 1950s and early 1960s. The canal cut through a portion of the site, redepositing artifacts and human bone in the spoil along either bank. Despite these findings professional archaeologists did not become aware of the site until 1982 when it was recorded by Carolyn Murphy during a reconnaissance survey of the barge canal for the Corps of Engineers. The survey was intended to identify sites that might be impacted by maintenance dredging or erosion along the canal. As a result of that initial survey Coastal Environmental, Inc. was contracted by the Corps to conduct additional survey along the canal and to carry out test excavations at seven sites, one of which was Buckeye Knoll. In 1989 CEI excavated 67 auger borings, five backhoe trenches and three 1x1 m hand-excavated units at the site in an effort to identify its limits and to sample the cultural deposits located there. The results of that work indicated that latest cultural deposits were present on the knoll west of the canal. Five sensitive artifacts were few in number, but those recovered suggested that the deposits spanned the period from about 5000 years ago to only a few centuries ago.

About two years ago the Corps of Engineers began developing plans to widen the barge canal. In November of 2000 Coastal Environmental was contracted to conduct two extensive test excavations at the Buckeye Knoll site in order to obtain additional information on the age, contents and distribution of the cultural deposits. The first phases of the fieldwork involved the excavation of numerous backhoe trenches around the periphery of the site in order to better define the limits of the latest cultural deposits and to recover geological information on the formation of the site. This work generally confirmed our previous estimate of the extent of the cultural deposits on the knoll, but it provided two important pieces of additional information. First, it suggested that intact mid-late deposits may be deeply buried under dredged material southwest of the knoll. Second, it indicated that intact deposits were not present between the levee and the barge canal. Following the completion

1. **Regional culture history.** The site has produced one of the most complete records of human occupation of any archaeological site on the coastal prairie of Texas, representing some 10,000 to 12,000 years of culture history. Identifiable periods include the Paleo-Indian, Early Archaic, Middle Archaic, Late Archaic and Late Prehistoric. The vertical distributions of time-diagnostic flint points and other artifacts, particularly in the Knoll Top and West Slope areas, show that the cultural deposits are intact and contain discrete, identifiable components. All of this offers a unique opportunity for increasing our understanding of long-term cultural development and change on the western Gulf coastal plain.

2. **Environmental history and human ecology.** Well-preserved and abundant animal bones from various deposits hold great potential for understanding the subsistence economies of the people who lived at Buckeye Knoll and how these patterns may have changed in response to shifts in climate and environmental factors. Flotation of the many soil samples taken from midden strata may provide information on economically important plant resources. Moreover, the good pollen preservation found in nearby floodplain sediments is expected to provide a model of environmental change with which to interpret changes in human adaptation during the long history of occupation at the site.

3. **Early Archaic bioarchaeology.** The Early Archaic cemetery at Buckeye Knoll contains one of the three largest samples of early human remains from North America, and represents some 10 percent of all known individuals of this age or older from the continent. As such, these materials hold unique potential for understanding early populations in terms of their health, diet and biological affinity. The report by Dr. Doyan and his associates from Florida State University which is part of the packet of information that all of you received discusses in some detail the various types of analyses that could be conducted on the human remains and the information provided by each. Only 25-30 percent of the estimated cemetery area was excavated, and many more remains are undoubtedly present and should be preserved and protected in place.

The quantity and variety of artifacts associated with the Early Archaic burials are striking and reflect an impressive level of aesthetic and technical development in material culture on the western Gulf coastal plain by 7000 years ago. Moreover, these materials appear to represent a previously unknown early culture pattern for this area. The presence of lanceolate dart points similar to late Paleo-Indian forms suggests a continuity in material culture traditions and technology, while the ground-stone plummets and hammerstones and chert imported from the Edwards Plateau of central Texas reflect far-ranging trade connections. Ornate shafts of shell indicate a concern for personal adornment and, along with pieces of asphaltum show that these early people were already exploiting the resources of the emergent Gulf shovelline. These items, the finely fashioned and labor-intensive quartzite "sinkers" and the large knives all suggest an emphasis on ideologically important (as opposed to strictly functional) objects. Caches of stone raw material and the placement of tool kits with the deceased suggest a concern for provisioning individuals for an afterlife. It may be possible to correlate the kinds of burial artifacts with the age and sex of individuals, an unprecedented opportunity for exploring social taboos/rituals in such an early population.

The other area in which a block excavation was opened was on the west slope of the knoll. The deposits there were similar to those on the knoll-top with a few exceptions. Zone 1 was thicker in the west-slope area and contained rather large numbers of artifacts dating to the Late Archaic and Late Prehistoric periods. Zone 2 was somewhat thinner than its counterpart on the knoll-top and in this area it produced occasional shells of mussel clams and coysters. A single extended burial found near the base of this zone is probably contemporary with the Late Archaic burial on the knoll-top. The deposits of Zone 3 were similar to those on the knoll-top, but the dart points recovered from this site appear to be well-preserved, dating to the Middle Archaic period. Beneath Zone 3 in this area was a yellowish-brown sand. Zone 4, that rested on the eroded Pleistocene terrace deposits and produced little cultural material.

Intact cultural deposits were encountered in one other portion of the site, a small area of midden located about 70 m east of the knoll-top block excavation. The deposits in this area consisted of three zones. The uppermost zone, about 30-40 cm thick, contained artifacts of the Rockford Phase, including Rockford Point and Peckis arrow points in association with bone and deer bone. This component probably represents a seasonal hunting camp of a coastal Karankawan group. The second zone was 40-90 cm thick and contained Archaic artifacts estimated to date between 6000 and 1000 years ago.

The bottom zone was a black silty sand about 25 cm thick that rested directly on the Pleistocene terrace deposits. This lower stratum produced a small number of stone tools that appear to be associated with a Paleo-Indian occupation. These include two fragments of lanceolate dart points with careful parallel pressure flaking and a distinctive woodworking tool known as a Dalton adz.

This slide gives you a schematic of what we think was the sequence of development of the principal deposits at the site. It begins about 10,000-12,000 years ago with the accumulation of the sandy Zone 3 deposits containing debris from Paleo-Indian period camps established on the Pleistocene terrace remnant. About 7000 years ago Early Archaic groups buried their dead in graves dug into the earlier deposits. Between 5000 and 6000 years ago the site was apparently subjected to extensive sheet erosion, removing the ground surface from which the Early Archaic burials were dug as well as the upper portion of Zone 3. Zone 2 with its Middle Archaic through Late Prehistoric camp debris began to accumulate after 5000 years ago and continued up until about 600 years ago. The Zone 1 deposit on the knoll-top formed after Native American occupation of the site had ended.

In addition to the archaeological remains that were the focus of our research, we collected sediment samples from cores cut from the buckeye terrace excavated around the periphery of the site in order to obtain diachronous material that will allow us to interpret the geologic history of the site. These samples have also produced well-preserved pollen for reconstructing the vegetation history of the site environs.

In summary, the Buckeye Knoll site contains important information for interpreting the prehistory of the Central Texas coastal region and for understanding larger issues of Early Archaic life in the south-central U.S. The major research topics include:

PRELIMINARY INVENTORY, BURIALS, 41VT98 (based on field notes)
Coastal Environments, Inc. 2001

Notes: Age/Sex are tentative, based only on partial field observations (Ad.= Adult or adolescent; juv. = juvenile);
No. of individuals is estimated solely on field observations and is likely to increase somewhat subject to further inventory.

Burial No.	Condition	Body Position	Head Orient.	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Zone	Age Sex
1-A	Poor	Flexed?	NW?	None	Cranium, mandible, long bones	E. Archaic	3	Ad.
1-B	Poor	?	?	2 bifacial blades	Cranium, incomplete long bones	E. Archaic	3	Ad.
1-C	Poor	Flexed?	NW?	None	Cranium, incomplete long bones	E. Archaic	3	Ad.
2	Poor	Flexed	S	Yellow ochre	Cranium, long bones	E. Archaic	3	Ad.
3	Fair	Flexed	NW	Cylindrical sandstone fragment	Cranium, longbones, carpals/tarsals, phalanges, rib and vertebrae fragments	E. Archaic	3	Ad. F
4	P-Fair	Bundle?	NA	notched dart pt.	Cranium and longbone fragments	E. Archaic	3	Ad.
5	Fair	Flexed	E	1 Waco sinker	Cranium, ribs, vertebrae, longbones	E. Archaic	3	Ad. M
6	Good	Bundle?	N/A	11 Waco sinkers, preform cache (N=8)	Cranium, longbone fragments	E. Archaic	3	Ad. M
7	Fair	Flexed	E	Biface fragment	Cran., mandible, ribs, longbones, carpals/tarsals, phalanges, pelvis	E. Archaic	3	Ad. F
8	Good	Flexed	S	2 plummet, 2 lanceolate points, antler and bone tools, flakes	Cran., mandible, ribs, longbones, carpals/tarsals, phalanges, pelvis	E. Archaic	3	Ad. M

Burial No.	Condition	Body Position	Head Orient.	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Zone	Age Sex
9	Poor	Flexed	S	None	Cran., mandible, ribs, longbones, carpals/tarsals, phalanges, pelvis	E. Archaic		Ad.
10	Poor	?	N?	9 marginella beads, 1 perite-shell bead	Cranium, mandible frags., longbone frags., rib frags.,	E. Archaic	3	Ad.
11	Poor	?	?	4 perite-shell beads	Cranial fragments (2 individuals)	E. Archaic	3	1 Ad. 1 Juv.
12	Fair	Flexed	S	6 freshwater Mussel	Cran., mandible, scapula frags., longbones	E. Archaic	3	Ad.
13	Fair	Flexed	S	7 Marginella beads	Cran., mandible, ribs, longbones, carpals/tarsals, phalanges, pelvis	E. Archaic	3	Ad. F
14	Poor	Flexed	SE	None	Cranium, longbones	E. Archaic	3	Ad. M
15	Poor	?	?	None	Cranium, longbones	E. Archaic	3	?
16	Poor	?	?	None	Cranium, mandible, humerus frags.	E. Archaic	3	Ad.
17	Poor	?	N	None	Cran., mandible frags., longbone fragments	E. Archaic	3	Juv.
18	Fair	Flexed?	?	2 marginella beads	Longbone frags., mandible, tarsals/carpals, phalanges	E. Archaic	3	Ad.
19	?	?	?	?	Longbones	E. Archaic	3	?

Burial No.	Condition	Body Position	Head Orient.	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Zone	Age Sex
20	Good	Extended	SE	None	Cranium, longbones, vertebrae	L. Archaic	3	Ad. M
21	Poor	Bundle?	N/A	1 bi-pointed bifaces	Cranial frags, longbone fragments	E. Archaic	3	?
22	Poor	?	?	1 Waco sinker	Longbone fragments	E. Archaic	3	?
23	Good	Extended	SE	6 bifaces, 1 Lange pt. red & yellow ochre	Entire skeleton	L. Archaic	2	Ad. M?
24	Fair	?	?	None	Cranial fragments	E. Archaic	3	?
25	Excel.	Extended	SE	2 whelk-shell pendants; Lange dart pt. (cause of death)	Entire skeleton (except right lower arm, hand)	L. Archaic	2	Ad. M
26	Poor	Flexed	SE	Side-notched dart pt., distal dart pt. frag.	Cranium, rib frags., scapula frags., longbones	E. Archaic	3	Ad. M?
27	Poor	Flexed?	S	2 Waco sinkers, 1 drill, 1 preform	Cranium, mandible, longbone frags.	E. Archaic	3	Ad. M
28	Poor	Flexed?	S?	1 Waco sinker	Cranial frags., longbone frags.	E. Archaic	3	Ad.
29	Poor	?	?	4 Waco sinkers	Cranial, longbone frags.	E. Archaic	3	?
30	Fair	Extended	SE	Pebbles (N=7; rattle?)	Entire skeleton	L. Archaic	2	Ad/F

Burial No.	Condition	Body Position	Head Orient.	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Zone	Age Sex
31	Poor	Flexed?	E?	None	Cranial frags., mandible frag., longbone frags.	E. Archaic	3	?
32	Good	Extended?	SE?	?	Only lower leg and foot exposed	L. Archaic	2	?
33	Fair	Sitting	N/A	None	Cran. frags., long bones, patellae, tarsals	E. Archaic	3	Ad.
34	Fair	Flexed	N	16 marginella beads	Cranial frags., clavicle, long bones, rib frags., vertebrae frags., metatarsals, phalanges	E. Archaic	3	Ad.
35	Fair	Bundle?	N/A	None	Long bone frags., phalange	E. Archaic	3	?
36	Poor	Bundle	N/A	None	Cranial frags., mandible, longbones, metatarsal	E. Archaic	3	Ad.
37	Good	Flexed	N	None	Entire skeleton	L. Archaic	2	Ad. F
38	Poor	Flexed?	W	1 marginella bead	Cranium, long bone fragments	E. Archaic	3	Ad.
39	Poor	Bundle	N/A	Red ochre powder	Cranium, long bones	E. Archaic	3	Ad.
40	Poor	?	?	None	Cranial frags., longbone frags.	E. Archaic	3	?
41	Fair	Flexed	SE	2 Freshwater mussel shells	Cranium, longbones, vertebrae, rib frags. pelvic frags, tarsals, phalanges	Indetermin.	3-Feb	?

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Burial No.	Condition	Body Position	Head Orient.	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Zone	Age Sex
42	Poor	Flexed	?	18 marginella beads	Longbones, pelvic bones	E. Archaic	3	Ad.
42-A	Poor	Flexed?	S?	None	Cranial frags., long bone frags.	E. Archaic	3	Juv.
43	Poor	Flexed	NW	1 lanceolate point 2 marginella beads	Cranium, long bones, rib frags., pelvic frags.	E. Archaic	3	Ad.
44	Poor	Flexed	E	None	Cranium, longbones, pelvic frags.	E. Archaic	3	Ad.
44-A	Poor	Flexed?	N?	1 Bannerstone	Cranial frags., longbone frags.	E. Archaic	3	?
45	Poor	Flexed	E	16 Marginella beads, mussel shell, sandstone piece, 5 lumps asphaltum	Cranial frags., pelvic frags., longbone frags.	E. Archaic	3	Ad.
46	Poor	Bundle?	N/A	6 sunray venus shell pendants	Cranial frags., longbone frags.	E. Archaic	3	Juv.
47	P-fair	Flexed	N	6 flakes, 1 lump asphaltum	Cranium, scapula frags., longbones, rib frags., carpals, metacarpals, tarsals, metatarsals, phalanges	E. Archaic	3	Ad. M?
48	Good	Bundle	N/A	None	Cranium, mandible, ribs, vertebrae, longbones, clavicle, hand/foot bones	Indetermin	2-3	Ad.

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Burial No.	Condition	Body Position	Head Orient.	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Zone	Age Sex
49	Fair	Flexed	S	2 lanceolate dart points, 1 antler billet, 1 bone flaker, 1 blade, red ochre	Cranium clavicle, mandible, longbones, ribs, patella frag., vertebrae frags., carpals, metacarpals, phalanges	E. Archaic	3	Ad.
50	Poor	Sitting	N/A	None	Cranium, maxilla, mandible, longbones	E. Archaic	3	Ad.
51	Fair	Bundle	N/A	None	Cranial frags., mandible, clavicle, scapula, carpals, calcaneus, longbones, vertebrae, rib frags.	Indetermin	2-3	Ad.
52	Fair	Bundle?	?	Bifurcate-base pt.	Cranium, mandible, longbones, phalanges	E. Archaic	3	Ad. M
53	Poor-fair	Flexed	NW	Red ochre	Cranium, longbones, vertebrae frags., pelvic frags., sacrum, carpals, metacarpals, phalanges, rib frags.	E. Archaic	3	Ad. F
54	Poor	?	?	None	Cranial frags., longbone frags.	E. Archaic	3	?
55	Fair	Sitting	N/A	3 drilled canid teeth, sunray venus shell, 3 perforated mussel shells, 6 marginella beads, red ochre	Cranium, mandible, scapula, rib frags. longbones, foot, hand bones	E. Archaic	3	Ad. F
56	Poor	?	?	?	Cranium	E. Archaic	3	?

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Burial No.	Condition	Body Position	Head Orient.	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Zone	Age Sex
57	Fair	Sitting	N/A	2 red ochre nodules	Cranium, mandible, scapulae, ribs, pelvis, longbones, vertebrae frags., hand and foot bones	E. Archaic	3	Ad. M
58	Poor	?	?	Point preform, red and yellow ochre, 1 large chert uniface, 1 Cuadalupe tool	Longbones, tarsals, pelvic frags, vertebrae	E. Archaic	3	Ad.
59	Poor	?	?	79 marginella shell beads, red ochre	Cranium, long bones	E. Archaic	3	Juv.
60	Poor	?	SE	23 marginella beads (necklace & bracelet)	Cranium, arm bones, phalanges, vertebrae frags., pelvic frags.	E. Archaic	3	Ad.
61	Poor	?	?	Lanceolate pt. preform, 4 Waco sinkers, red ochre	Cranial frags., mandible, longbone frags.	E. Archaic	3	Juv.?
62	Poor	Flexed	E	2 plummet	Cranial frags., rib frags., vertebrae frags., pelvic frags., longbones, hand/foot bones	E. Archaic	3	Ad.
63	Fair	?	?	None	Cranial frags., longbone frag.	E. Archaic	3	?
64	Fair	Bundle?	?	None	Cranial frags. (2 indiv.), longbone frags.	E. Archaic	3	?

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Burial No.	Condition	Body Position	Head Orient.	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Zone	Age Sex
65	Poor	?	?	2 Waco sinkers; lithic cache (1 preform, 3 large flakes)	Humerus, radius, ulna fragments	E. Archaic	3	?
66	Poor	Bundle?	?	Red ochre	Cranium, femur, humerus, fibula, tibia, patella, pelvic frags., vertebrae frags., sacrum, foot/hand bones	E. Archaic	3	Ad.
67	Fair	Bundle (poss. 2 individuals)	N/A	Red ochre, 2 marginella beads	Cranial frags., rib frags., longbone frags., scapula frags., pelvic frags., hand/foot bones	E. Archaic	3	Juv.
68	Poor	?	?	Red ochre nodule	Cranial frag., mandible frag., vertebra spine; longbone frags.	E. Archaic	3	Juv.
69	Poor	Isolated skull	N/A	None	Cranial fragments	E. Archaic	3	Juv.
70	Poor	Isolated skull?	N/A	None	Cranial fragments	E. Archaic	3	Juv.
71	Fair	Flexed	S	None	Cranial frags., mandible frags., rib frags., vertebrae frags., pelvic frags., sacrum frags., longbones, hand/foot bones	E. Archaic	3	Ad. F

411798 SHELL BEAD INVENTORY (ALL PROBABLY MORTUARY)

BEADS ASSOCIATED WITH BURIALS

BURIAL	MARGHERITA SHELL	NEHINDA VESSEL	CLIVE SHELL	WHELIK COLUVAWELA
10	9	1		
11	7	4		
13	2			
18	2			
22	16			
24	14			
27	1			
38	1			
42	18			
43	2			
46	16			
58	6			
60	78			
66	20			
67	2			
74	74			
13/34	638			
34/74	1			
41/69/81	3			
TOTAL	830	6	0	0

CURRER BEADS PER BURIAL

EXCUREMENTS	MARGHERITA SHELL	NEHINDA VESSEL	CLIVE SHELL	WHELIK COLUVAWELA
Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
S14 M82	3	11	3	
S12 M84	2	4	3	
S12 M86		12	3	
S12 M88		1	1	
S14 M84	5	3	2	1
S14 M88	1	3	4	
S14 M86		1		
S14 M82	1	8	7	1
S16 M84		16		
S16 M85		7		
Total per zone:	12	124	12	1
GRAND TOTAL	976	18	8	1

Note: Beads in Zone 3 are probably collected from Early Archaic burials.

Burial	Content	Position	Orientation	Mortuary Objects	Summary of Bone Elements Present	Est. Time Period	Age	Sex
72	Tail	Flexed	N	1 freshwater mussel shell, 1 brace	Cranial frags., mandible, clavicle, scapula, rib frags., pelvic frags., longbones, hand/foot bones	E. Archaic	Ad.	
73	Poor	Flexed?	S	Red ochre stain, sandstone slab	Cranial frags., mandible, clavicle frags., vertebra frags., pelvic frags., longbone frags., phalanges	E. Archaic	?	
74	Poor	Flexed?	N	Large stemmed bracelet, 2 bannerstones, 628 margherita beads, red ochre	Cranial frags., rib frags., pelvic frags., vertebra frags., longbones	E. Archaic	Ad.	
75	Poor	Flexed	NE	None	Mandible, rib frags., scapula, longbones, hand/foot bones	E. Archaic	Ad.	

Totals of Individuals (minimums):

Early Archaic (Zone 3 only): 70

Late Archaic (Zone 2 only; includes possible examples): 6

Indeterminate (at interface of Zones 2 and 3): 3

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INVENTORY OF MORTUARY OBJECTS, 41V198
COASTAL ENVIRONMENTS, INC., 2001

Burial No.	Item(s)	Lot No.	F.S. No.
7	Yellow ochre (rockfish?)	2674	1269
	Yellow ochre (rockfish?)	3025	1240
8	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1173	408
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1108	N/A
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1171	424
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1172	427
9	Yellow ochre (rockfish?)	2674	1269
	Yellow ochre (rockfish?)	3025	1240
10	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1173	408
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1108	N/A
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1171	424
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1172	427
11	Yellow ochre (rockfish?)	2674	1269
	Yellow ochre (rockfish?)	3025	1240
12	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1173	408
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1108	N/A
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1171	424
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1172	427

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INVENTORY OF MORTUARY OBJECTS, 41V198
COASTAL ENVIRONMENTS, INC., 2001

Burial No.	Item(s)	Lot No.	F.S. No.
1A	(3) freshwater mussel shell fragments	1102	N/A
1B	Iron nail, 1/2 inch	1038	291
	Iron nail, 1/2 inch	1151	427
2	Yellow ochre (rockfish?)	2674	1269
	Yellow ochre (rockfish?)	3025	1240
3	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1173	408
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1108	N/A
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1171	424
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1172	427
4	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1173	408
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1108	N/A
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1171	424
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1172	427
5	Yellow ochre (rockfish?)	2674	1269
	Yellow ochre (rockfish?)	3025	1240
6	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1173	408
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1108	N/A
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1171	424
	Irregularly shaped, reddish-brown, possibly bone or shell fragment	1172	427

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**INVENTORY OF MORTUARY OBJECTS, 41VT98
COASTAL ENVIRONMENTS, INC., 2001**

Build No.	Item(s)	Lot No.	F.S. No.
30	7 cobble, possibly from collar (interment below)	3017	1303
	(also below fragment)	1921	967
	(core)	1930	950
	(core)	1935	961
	(flake)	1937	958a
	(found tooth)	1932	95a
	(speckled freshwater mussel shell fragment)	1932	979
	(granular)	1934	901
31	(dark dirt point fragment)	2073	1364
33	(burned clay nodules with ochre staining)	3026	1381
34	(small cobble)	2171	1162
	(6 manganite shell beads)	2184	N/A
37	(flake)	3162	1303
	(dark dirt point fragment)	2099	1366
	(dark dirt point fragment)	3024	N/A
	(core)	2168	1692
	(dark fragment)	3101	1319
	(14 manganite shell beads)	3117	N/A
	(granular)	2098	1364
38	(dark brown bone fragment)	3069	1366
	(manganite shell beads)	3185	N/A
40	(dark flake)	2281	1348
	(manganite shell beads)	2282	1262
	(granular)	2283a	1213
41	(freshwater mussel shell)	2268	1276
	(freshwater mussel shell fragment)	2292	1279
	(freshwater mussel shell fragment)	3026	1311
	(2 cobbles)	3128	N/A
42	16 manganite shell beads	3110	1362
	3 manganite shell beads	3161	1394
	(unidentified limestone artifact fragment)	3158	1403
42A	limestone artifact fragments	3099	1393

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**INVENTORY OF MORTUARY OBJECTS, 41VT98
COASTAL ENVIRONMENTS, INC., 2001**

Build No.	Item(s)	Lot No.	F.S. No.
12 cont.	freshwater mussel shell	3159	1415
	freshwater mussel shell	3170	1417
	2 freshwater mussel shells	3172	1418
	freshwater mussel shell	3173	1419
	freshwater mussel shell	3175	1420
13	7 manganite shell beads	3111	N/A
16	2 manganite shell beads	3122	N/A
21	freshwater mussel shell	1671	771
22	limestone Waco Shaker	1650	806
	1 manganite shell beads	2261	N/A
	(unseen clay fragment)	2261	N/A
23	Large point	2046	1381
	(larger flake)	2045	1032
	(manganite flake)	2047	1033
	(manganite flake)	2048	1034
	(manganite flake)	2054	1035
	(manganite flake)	2073	1036
	(manganite flake)	2074	1037
	(manganite flake)	2274	1363
	(red ochre nodules)	2280	1267
25	(found femur and fibula with left hand)	3201	1431
	weak shell fragment	1765	845
	weak shell fragment	1766	846
	(small sandstone)	2268	N/A
26	(shell-etched dirt point)	3135	1400
	(flake (residue analysis))	2227	1378
	(dark dirt point fragment (residue analysis))	3175	1423
27	Guertle Waco Shaker	2110	1096
	Guertle Waco Shaker	2111	1097
	shell	2102	1098
	shell	2107	1099
28	limestone Waco Shaker	1755	835
29	(flake fragment)	3187	N/A

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**INVENTORY OF MORTUARY OBJECTS, 41V198
COASTAL ENVIRONMENTS, INC., 2001**

Build No	Item(s)	Lot No	F.S. No
47 cont.	cardium	3071	1301
	red ochre (modular)	3079	1372
48	self-sterilized clear paint	2208	1783
	altered cardium	3001	1286
	red ochre (modular)	3009	1296
49	red ochre (modular)	2189	1171
49	3 perforated mesh wire mesh panels	3083	1376
	1 perforated mesh wire mesh panel	3072	1340
	1 perforated mesh wire mesh panel	3182	1173
	1 mesh wire mesh panel	2216	1486
	1 mesh wire mesh panel	3078	1293
	1 mesh wire mesh panel	3085	1376
	1 mesh wire mesh panel	3121	N/A
	2 panels	3080	1379
	red ochre (modular)	3082	1376
50	red ochre (modular)	3033	1372
	red ochre (modular)	3039	1346
51	Substrate box	1143	603
	perforated mesh wire mesh	2016	1182
	2 mesh wire mesh (for residue disposal)	2066	1146
	red ochre (modular)	2241	1246
52	red ochre (modular)	2276	1285
	red ochre (modular)	2278	1286
	red ochre (modular)	2276	1284
	2 mesh wire mesh panels and supports	3116	N/A
53	2 mesh wire mesh panels (replace old panels)	3157	1402
54	Longshore table storage equipment, panel (replace old)	2239	1222
	Quartzite Waco Saver (replace equipment)	2253	1270
	Quartzite Waco Saver (replace equipment)	2254	1271
	Quartzite Waco Saver (replace equipment)	2259	1276
	Quartzite Waco Saver (replace equipment)	3013	1301
	red ochre (modular)	3013	1301
	red ochre (modular)	2248	1248
	red ochre (modular)	2248	1248

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**INVENTORY OF MORTUARY OBJECTS, 41V198
COASTAL ENVIRONMENTS, INC., 2001**

Build No	Item(s)	Lot No	F.S. No
43	Longshore table storage equipment	2141	1113
	2 mesh wire mesh panels	3075	1340
	red ochre (modular) (replace old)	3024	1389
	red ochre (modular) (replace old)	3025	1385
44	breakdown box (replace old)	2179	1170
	3 mesh wire mesh panels	3132	N/A
45	3 mesh wire mesh panels	3092	N/A
	4 mesh wire mesh panels	3067	1386
	3 mesh wire mesh panels	3084	1377
	3 mesh wire mesh panels	3190	N/A
	6 mesh wire mesh panels and supports	3178	1526
	mesh wire mesh panel	3054	1351
	mesh wire mesh panel	3025	1385
	mesh wire mesh panel	3047	1343
	mesh wire mesh panel	3055	1387
	mesh wire mesh panel	3076	1369
	mesh wire mesh panel	3078	1371
46	perforated mesh wire mesh, nested with F.S. #1314	3028	1314
	perforated mesh wire mesh, nested with F.S. #1314	3029	1315
	Surry Venus shell	3018	1304
	Surry Venus shell	3019	1305
	Surry Venus shell	3020	1312
	Surry Venus shell	3027	1313
47	table with mesh wire mesh and collection	3122	1409
	table	3124	1410
	table	3124	1411
	table	3165	1413
	table	3169	1413
	table	3178	1435
	table	3184	N/A
	table	3167	1414
48	Longshore table storage equipment	2213	1183
	Longshore table with panel (replace old)	2186	1177
	table with panel	2253	1280
	table with panel	2234	1224
	table with panel	2233	1223
	table with panel	2244	1281

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41V798 Diagnostic Lithic Quantification - Knoll-top, con. (Non-Mortuary)

Diagnostic	Unit	Zone	Level	Lot	F.S.
Palisade	S14 W65	3	Level 11 (107 cm.)	2076	102
Goodwin	S14 W74	3	NWQ Level 14 (130-140 cm.)	1584	570
Goodwin	S14 W84	3	Level 12 (111 cm.)	2151	1124
Untyped Lithic	S12 W64	2	NEQ Level 11 (100-110 cm.)	1665	570
Untyped Lithic	S12 W69	3	NEQ Level 18 (179 cm.)	1294	295
Untyped Lithic	S12 W69	3	NWQ Level 19 (180-190 cm.)	1554	570
Untyped Lithic	S12 W70	3	NWQ Level 17 (151 cm.)	1725	572
Untyped Lithic	S12 W74	3	Level 14 (142 cm.)	2142	1169
Palisade	S14 W85	3	Level 15 (162 cm.)	2230	1220

41V798 Diagnostic Lithic Quantification (Non-Mortuary)

Diagnostic	Unit	Zone	Level	Lot	F.S.
Palisade	S20 W20	3	NEQ Level 7 (1020 cm.)	473	570
Palisade	S20 W20	3	NEQ Level 10 (1030 cm.)	1814	674
Palisade	S20 W20	3	NEQ Level 12 (110-120 cm.)	343	1
Palisade	S4 SWQ 32	3	Level 3 (92-92 cm.)	466	56
Palisade	S5 W12	3	Level 4 (90-90 cm.)	356	14
Palisade	S5 W12	3	Level 5 (90-90 cm.)	476	66
Palisade	S18 W18	3	NEQ Level 10 (98 cm.)	1857	673
Palisade	S20 W20	3	NEQ Level 12 (120 cm.)	1813	911
Palisade	S18 W18	3	NEQ Level 13 (126 cm.)	1895	938

41V798 Diagnostic Lithic Quantification (Non-Mortuary)

Diagnostic	Unit	Zone	Level	Lot	F.S.
Palisade	N6 W22	3	Level 2 (26-30 cm.)	546	67
Palisade	N6 W22	3	Level 7 (64 cm.)	655	68
Palisade	N6 W22	3	Level 10 (100 cm.)	658	71
Palisade	N6 W22	3	Level 11 (104 cm.)	659	72
Palisade	N6 W22	3	Level 12 (104-120 cm.)	653	74
Palisade	N6 W22	3	Level 13 (104-120 cm.)	654	81

41V798 Non-Mortuary Diagnostic Lithic Quantification - West Bank

Diagnostic	Unit	Zone	Level	Lot	F.S.
Palisade	R34 F10	3	Level 10 (95 cm.)	656	189
Palisade	R112 W48	3	Level 2 (80-80 cm.)	653	370
Palisade	R41 F10	3	Level 2 (80-80 cm.)	676	370

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41V798 Diagnostic Lithic Quantification - Knoll-top, con. (Non-Mortuary)

Diagnostic	Unit	Zone	Level	Lot	F.S.
Palisade	S16 W65	2	NEQ Level 8 (88 cm.)	2528	103
Palisade	S16 W65	2	NEQ Level 10 (100 cm.)	2529	103
Palisade	S16 W65	2	NEQ Level 11 (103 cm.)	1543	412
Palisade	S16 W65	2	NEQ Level 11 (103-110 cm.)	2143	712
Palisade	S16 W65	2	NEQ Level 11 (103-110 cm.)	3353	570
Palisade	S16 W65	2	NEQ Level 11 (103-110 cm.)	3354	570
Palisade	S16 W65	2	NEQ Level 11 (103-110 cm.)	2119	570
Palisade	S16 W65	2	Level 8 (73 cm.)	735	148
Palisade	S16 W65	2	Level 8 (73 cm.)	1176	431
Palisade	S16 W65	2	NWQ Level 14 (130-140 cm.)	1883	782
Palisade	S16 W65	2	NWQ Level 16 (153 cm.)	639	525
Palisade	S16 W65	2	NWQ Level 19 (177 cm.)	639	525
Palisade	S16 W65	2	NWQ Level 13 (128 cm.)	3981	570
Palisade	S16 W65	2	SEQ Level 10 (90-100 cm.)	2195	570
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	1798	721
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	2268	1044
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	3341	526
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	3355	637
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	1826	846
Palisade	S16 W65	2	SEQ Level 13 (126 cm.)	1761	841
Palisade	S16 W65	2	SEQ Level 10 (97 cm.)	1127	354
Palisade	S16 W65	2	SEQ Level 10 (97 cm.)	1860	749
Palisade	S16 W65	2	SEQ Level 10 (98 cm.)	1116	342
Palisade	S16 W65	2	SEQ Level 10 (98 cm.)	1354	614
Palisade	S16 W65	2	SEQ Level 10 (98.5 cm.)	1369	672
Palisade	S16 W65	2	SEQ Level 10 (98.5 cm.)	1941	999
Palisade	S16 W65	2	SEQ Level 10 (100 cm.)	2655	1041
Palisade	S16 W65	2	SEQ Level 17 (170 cm.)	1361	645
Palisade	S16 W65	2	SEQ Level 12 (110-120 cm.)	3342	570
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	3343	570
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	3344	570
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	2121	594
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	1450	570
Palisade	S16 W65	2	SEQ Level 11 (100-110 cm.)	2029	1016
Palisade	S16 W65	2	SEQ Level 11 (107 cm.)	1488	674
Palisade	S16 W65	2	SEQ Level 12 (110-120 cm.)	1586	570
Palisade	S16 W65	2	SEQ Level 16 (154-160 cm.)	1891	570
Palisade	S16 W65	2	SEQ Level 11 (113 cm.)	1122	349
Palisade	S16 W65	2	SEQ Level 11 (113 cm.)	1950	570
Palisade	S16 W65	2	SEQ Level 12 (119 cm.)	2253	1268
Palisade	S16 W65	2	SEQ Level 10 (90-100 cm.)	3351	570
Palisade	S16 W65	2	SEQ Level 15 (139-139 cm. bottom, 144 cm.)	2259	1269
Palisade	S16 W65	2	SEQ Level 14 (131 cm.)	2162	1081
Palisade	S16 W65	2	SEQ Level 12 (110-120 cm.)	4192	445
Palisade	S16 W65	2	SEQ Level 2 (148 cm.)	1854	317

OSTEOLOGICAL METHODS AND UTILITY

Assessment of site and material significance and the potential contribution of a sample to our understanding of North American archaeology requires a consideration of site integrity, site context, and its relationship with other locally, regionally and nationally significant samples. As part of this process, we have compiled several comparative skeletal and dental databases and have initiated a compilation of bibliographic references of previous analyses on Texas skeletal material. The first step in this report will be to assess the broader context of Buckeye Knoll's potential scientific contribution. We will then consider Buckeye Knoll's potential for local, regional and national contribution for understanding biocultural adaptation in early Native American populations living along the Texas Gulf Coast. First-hand, in situ observation of the skeletal material indicates most of the remains are incomplete and fragmentary. Nonetheless, the collection, as a whole, will provide both metric and nonmetric skeletal and dental observations that are useful in a wide variety of bioarchaeological comparisons. According to the preliminary field inventory, the Buckeye Knoll sample consists of 75 burials with an estimated minimum of 80 individuals. Two burials are definitely Late Archaic (ca. 2500 BP), four additional burials 'may' be Late Archaic and the remaining 69 burials are definitely or probably Early Archaic (ca. 6500 BP) (all dates mentioned here are uncorrected radiocarbon dates).

Human skeletal material and the information it provides has long been recognized as one of the most important components of the archaeological record (Sheele and Bramblett 1988; Buikstra and Ubelaker 1994). Such materials provide a series of essentially unique perspectives on the past through considerations of population biology, population comparisons, population change through time, population health and demography. A brief summary of these perspectives is provided as a way of framing the potential importance of the Buckeye Knoll materials. It is clear that skeletal material provides the only medium through which direct information on a population's physical and biological characteristics (e.g., cranial, post cranial, and dental metrics and nonmetrics) can be obtained. This information is used to assess a population's morphological features vis-a-vis other comparative information (Buikstra 1980; Steele and Powell 1993), an approach that has driven a majority of the osteological data collection in the last century. Through statistical comparison of available attributes, we are able to address issues of population evolution that have both chronological and spatial components. These analyses allow for assessment of population affinity, migration patterns and patterns of interaction relating to the broader issue of diachronic population and technological change. In the continental United States, such strategies have been particularly useful in the Midwest where researcher interest and preservation (and consequently larger sample sizes) has proven to be an integral component for understanding not only biological aspects of human populations but also cultural aspects (see studies by J. Buikstra and her colleagues and students centered on sites in the Illinois Valley during the Archaic and Mississippian periods - Buikstra 1984; Charles et al. 1988 and many others). Until recently, this approach was the only method for assessing a population's 'genetic' relationships. However, recent developments have initiated a redirected emphasis on the assessment of population affinity through direct access to human genetic material in the form of modern and ancient DNA comparisons (Doran et al. 1986; Smith et al. 1999).

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The Place of Buckeye Knoll (41VT98) Material With Respect to Bioarchaeology
Final Report

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ABSTRACT

This document provides a technical overview of the scientific importance of human skeletal remains from the Buckeye Knoll Site (41VT98), Victoria, Texas. The materials were recovered by Coastal Environments, Inc. under contract to the Corps of Engineers as part of Section 106 archaeological investigations undertaken in conjunction with improvements to the Channel to Victoria. A brief overview of the importance of osteological inventory and types of information obtained is presented.

To assess the scientific importance and significance of the Buckeye Knoll materials, several types of information are used to place the materials within a broad national, continental and even international perspective. These assessments are based on a series of Florida State University, Department of Anthropology databases developed over the last 20 years. They include information on North American skeletal sample size, chronological distribution, metric and nonmetric features - all useful for comparative purposes. Some of these databases also contain information for global samples from Europe to Japan and Australia and South America. An additional perspective on the material's scientific importance and uniqueness is derived from a consideration of the geographic and chronological distribution of known skeletal samples from the state of Texas (primarily based on a series of previous Corps funded studies).

The simplest facts of this comparative perspective include the following salient observations: samples of this antiquity are rare; samples of this size and antiquity (in excess of 6,000 years before present) are even rarer; of the over 60,000 individuals in these various databases there are fewer than 800 individuals of this antiquity in North America; the Buckeye Knoll materials (specifically the Early Archaic samples) constitute the third largest sample of this antiquity in North America. The majority of Texas samples have received virtually no inventory or detailed analysis further emphasizing the potential contribution of the Buckeye Knoll materials.

In summary, the scientific information which could be obtained from the study of the Buckeye Knoll materials is extremely important and provides a virtually unique opportunity not only for an understanding of Texas bioarchaeological adaptation but for our understanding of North American and New World human adaptation. The size of the sample coupled with their antiquity emphasizes the importance of the Buckeye Knoll materials.

targeting genetic haplotype morphology which are identifiable in the mitochondrial DNA (as opposed to the nuclear DNA). In some samples, no identifiable or analyzable DNA is recoverable due to postdepositional DNA degradation. To date, no viable models for preselecting samples with a higher possibility of DNA preservation are available and the simplest and most common strategy is simply to attempt DNA extraction on any samples under investigation. The larger the sample and the better the preservation, the greater the detail and richness of the interpretive return. It is clear, however, that even in relatively poorly preserved samples analytical rigor and thorough investigation can provide surprising amounts of information. This is particularly true for samples which are unusual or significant with respect to geographic or chronological placement as is the case with Buckeye Knoll.

For optimal analytical richness, all of these techniques can be employed to provide the strongest interpretive framework for detailing the lives of prehistoric populations. In some situations, particularly those involving potential descendant populations, a reduced set of analytical approaches omitting destructive analyses and focusing on nondestructive metric is an effective strategy. The information recovered is quite important and provides the only real method for understanding population affinity, health and demography.

COMPARATIVE DATABASES DESCRIPTIONS

Several databases are used in this discussion to frame the local, regional and national potential of the Buckeye Knoll (41V798) skeletal sample. These databases have been under development for the last 20 years and provide a variety of chronological and geographic perspectives for comparing skeletal samples such as Buckeye Knoll. All of the databases were initiated as part of a similar comparative effort specifically for FSU archaeological investigations of the Windover site near the east coast of Florida (Windover dates to 7410 14C-years BP and is the largest sample of human skeletal material of this antiquity in any of the databases considered).

The four most important databases will be briefly described and then compared in more detail to the Buckeye Knoll materials. These databases include an inventory of North American skeletal samples (NORTH), a craniometric database (CRAN), a postcranial database (PCRAN), and a dental metric database (DENT). A separate database constructed specifically for this study is based on materials from Texas (TEXAS). Details of these databases can be found in Appendix I. Excluding the TEXAS database these datasets minimally contain some kind of information on over 60,000 individuals. While the greatest emphasis has been on the North American database and on the craniometric database, we continue to expand these databases as more information is obtained. Even if an international database was considered the conclusions would be essentially the same and is predicated upon the fact that human skeletal material as old as that from Buckeye Knoll is exceedingly rare regardless of geographic context.

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In addition to population genetic issues, an additional focus of modern osteological investigation has been the assessment of population health profiles through assessment of pathological and degenerative changes visible in the skeleton. Identification of specific pathogens, sometimes through differential diagnosis, as well as more recently, identification of surviving bacteria, has also been useful in this approach. More traditional, directly observable features such as linear enamel hypoplasia (evidence of growth disruption in teeth), cribra orbitalia, porotic hyperostosis, and growth arrest lines, as well as actual disease (viral or bacterial based pathogens) states, continue to provide important information of levels of health and disease loads in prehistoric contexts (Buikstra and Cook 1980). Collectively, these approaches have proven useful for developing biological profiles of "success" or "stress" in populations with an emphasis on how "health" relates to cultural and environmental adaptation strategies. This has been one of the critical elements in understanding major shifts in subsistence patterns (hunting-gathering-fishing to agriculture in its various forms) as well as the interaction of such strategies with reconstructed environmental features (see Cohen and Armelagos 1984).

A further focus of skeletal investigation is the assessment of population demographic (or paleodemographic) features. This approach, optimally applied in concert with both biodistance and health related studies as discussed above, minimally requires reliable assessments of age and sex in relatively large skeletal samples (Verano and Ubelaker 1992). For analytical purposes, most researchers feel a minimum of 50 individuals can effectively be used in this approach allowing observations of life expectancy, mortality rates, population growth rates, fertility, generation length, family size and other demographic parameters (Buikstra et al. 1986).

The strategies discussed above are all nondestructive and require little more than the collection of appropriate observable features involving an array of measurement tools and possibly radiographic analyses (x-ray). Some of this information can be collected in the field in relatively short order, although the quality and richness of the results optimally requires a more prolonged laboratory inventory often involving several researchers with specific scientific expertise and their collaboration over several years.

Some techniques of investigation require the destruction of small bone samples (less than 2 grams) and can supplement other nondestructive approaches. Typically these strategies provide an additional range of parameters related to health issues and other features (Lambert et al. 1982). Some of these approaches involve thin section study of the bone itself while a number of others require the chemical/molecular examination of small bone samples - some so small that their extraction can be accomplished with undetectable bone fragments (Tuross et al. 1994). The most common techniques involve trace, or major element assessment and stable isotope determination, all of which are standard bone chemistry investigation procedures. Prior studies have focused on the contribution of carbon and nitrogen isotopes for paleodietary reconstruction, however, other elements such as sulfur, strontium, lead, and oxygen have also proven to be useful of diet and residential mobility. In the last 15 years, major advances in extraction and characterization, and direct observation of genetic markers has also added a potentially much more precise method of assessing population genetic relationships, familial connections, and even sex in either poorly preserved or subadult remains where traditional sex assessment criteria are difficult if not impossible (Smith et al. 2000; Tuross 1997; Stone et al. 1996). Increasingly, this approach is arguing biological residues in tooth pulp cavities where the risk of contamination is minimized (Kohlman and Tuross 2000). Most of the genetic studies are

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FCRAN (post cranial) Database Comparison

Chronological affiliation of all the other samples in the postcranial database runs from a small series of historic samples to a larger series of prehistoric materials ranging from 170 to 7,400 BP (Windsor). The postcranial database contains a large number of individuals from Florida (n=205), Illinois (n=14), and Alabama (n=3) and most of the remaining samples come from sites of the Mississippi River. Samples in this database are generally from much more recent intervals, typically the last 2800 years and Windsor represents the largest substantially older sample. Almost half the postcranial inventory comes from the last 1000 years. Clearly older samples do exist but often only cranial remains are reported. A number of Texas sites, essentially many of those which appear in the cranial database, could be added to the postcranial inventory but the general distribution would remain the same with the majority of available samples coming from the last 2000 years.

DENT(al) Database Comparison

The dental database contains information on over 1500 individuals. The mean radiocarbon date for the entire sample inventory is 2646 14C years BP for the US sample the mean radiocarbon date is 577 14C years BP. Only Windover has dates in excess of 6000 BP, again emphasizing both the importance of collecting the existing sample data as well as the scientific importance of the Buckeye, Knoll materials. Excluding Windover, the next oldest sites are Bird Island (Florida, with a date of 4570 14C years BP) and Indian Knoll (Kenucky, possibly 5302 BP though this has recently been questioned) and Glacial Kerue (Ohio, n=33, 2200 14C years BP). All other US sites in the dental sample are from the last 2000 years. There are actually more Japanese materials in excess of 3000 BP than there are US samples of similar antiquity (excluding the Windover materials). This emphasizes the scientific importance of taking a broad view of the significance of the Buckeye, Knoll materials.

TEXAS Database Comparison

As part of a Corps of Engineers inventory of skeletal material from the central US, a number of researchers prepared inventories of existing skeletal samples (Steele et al. 1959; Story et al. 1990; Ester et al. 1989 - please see Appendix I for further details of the TEXAS database and details of slight adjustments in geographic organization we have used specifically for this comparison). As noted earlier, diverse sets of information were collected and a subset could be extracted which specifically deals with Texas. This set effort provides the most thorough inventory of Texas skeletal material to date. The Texas inventory includes information on 962 sites. This Texas database potentially contains information on 6,024 individuals. Of this number, however, only 413 sites contain chronological affiliation and have information on 3,107 individuals. The dated materials have a mean date of 1,050 years BP and range in age from historic period to the Horn Shelter material dated to 10,310 14C years BP. The sample comes from 185 Texas counties. Four hundred and twenty seven samples consist of single burials, 124

NORTH American Skeletal Inventory Database Comparison

Compared to the North American database containing 42,304 individuals (355 sites) there are only 749 individuals from 61 sites in North America that are as old as those from the Buckeye, Knoll site. The Buckeye, Knoll Early Archaic sample (n=69 burials) is the third largest US site with samples as large and as old as those from Buckeye, Knoll. One is the Windover site in Florida and the second is Carrier Mills in Illinois (date bp = 6,752, n=159). A third site, Tick Island, also in Florida contains an additional 175 individuals and has a reported date of 5,302 BP. Indian Knoll in Kentucky contains over 1,000 individuals and has a reported date of 5,302 years, however, recent information suggests the site is roughly 2,000 years more recent and thus not from the Middle Archaic as has been reported. Most of the sites older than Buckeye, Knoll contain between 1 and 5 individuals and only 17 sites contain more than 6 individuals.

In this NORTH sample there are 39 Texas sites containing 4,049 individuals. Of these there are only 7 sites older than 6000 BP which contain 28 individuals (Seminole Sink, n=21; Horn Shelter, n=2; and the Wilson-Leonard II site, Midland, J.C. Putnam, Shifting Sand and Abilene each containing single individuals).

Clearly, samples of this size and antiquity are quite rare; this is particularly obvious when one considers the total number of archaeological sites so far identified in the United States. Skeletal material is found at only a fraction of these sites and the inventory of truly old sites containing skeletal material, is, relatively speaking, vanishingly small. While there are greater numbers of sites in South and Central America and the Old World as old as Buckeye, Knoll, most of the samples of this size are from much more recent time periods. For example, in a South American database similar to the NORTH database containing over 6,000 individuals there are only 435 individuals as old as those from the Early Archaic component at Buckeye, Knoll and only one site contains more than 69 individuals and dates to 6800 BP. This again emphasizes the importance of the Buckeye, Knoll material.

CRAN(al) Database Comparison

Of the 6,174 individuals in the cranial database coming from 455 sites all over the world there is a clear bias for much more recent materials, and only ten sites produce samples older than 6,000 BP and include information on only 57 individuals. Florida contains the greatest inventory of such materials with 42 individuals from Windover and an additional four from two other Florida sites (Warm Mineral Springs and Little Salt Springs). A small series of specimens of similar antiquity also come from Japan and Australia (fewer than five individuals).

With respect to the craniometric database roughly 1,700 individuals come from only three states Florida (n = 917), Illinois (n=730), and California (n=116). Thirteen other states contribute the remainder of the US samples.

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individuals; however, the much smaller median indicates the average sample size is being leveraged by a few much larger sites. With an estimated 75 individuals, Buckeye Knoll is among the largest skeletal samples for the entire Gulf Coast of Texas and exceeds the 95% confidence bound for sample size for this region. However, as with prior workers, most are undated samples. Of the 103 Coastal Strip samples, only 18 had information on temporal affiliation. Of these 18, the dates range from 180 to 2273 years BP.

The geographic region located just inland of the Coastal Strip (Region 2) consists of 71 sites with sample sizes varying from 1 to 242 individuals. The average number of individuals for all samples was 14, however, as with Region 1, the median value was much lower indicating the typical sample size for this region is much smaller. Again, the Buckeye Knoll sample is beyond the 95% upper confidence bound in terms of sample size. The data for temporal affiliation is extremely limited with only 2 of 71 samples having associated dates which range from 200 to 4875 years BP. The average date of Region 2 samples is 2135 years BP. With an estimated date of 6500 years BP and an estimated sample size of 75 individuals, the Buckeye Knoll site is the oldest and one of the largest skeletal samples found along the Coastal Strip and Plain of Texas. These data alone indicate the absolute scientific importance of the sample.

Despite Buckeye Knoll's uniqueness, it is also evident that several comparative samples exist that would allow thorough and meaningful bioarchaeological comparisons. Of the 103 coastal strip samples, 14 of these have sample sizes larger than 20 individuals (Caplen, Harris County Juy's School Cemetery, Ayala, Diaz, Berryman, Calle del Oso, Blue Bayou and Morris) totaling 890 burials. The average sample size for these larger samples is 93 individuals, a figure close to the reported estimate for Buckeye Knoll. There are 87 additional sites whose sample sizes are less than 20 individuals that could be included in an aggregate study, an analytical procedure commonly employed in bioarchaeological research (see for example, Larsen's work on the Georgia Coast and Rose's work in Arkansas). These 87 sites include an aggregate 349 burials. It should be noted that many of the samples located in the Coastal Strip have no recorded sample size information and this 349 individual figure is likely an underestimate.

The adjacent Coastal Plain area (Region 2) also has a substantial representation of comparative samples. We have found 10 sites in the Coastal Plain with sample sizes greater than 20 individuals (Deadman's Tank, Ernest White, Goebel, Hirtzfelder Cave, Mission San Juan Capistrano, C. H. Chernosky, Mission Espinosa, Loma Sandia, Mason Ranch, and Crestmont) for a total of 780 individuals. The average size of these larger samples is 78, very close to the MNI estimate for Buckeye Knoll. There are 60 additional sites whose sample sizes are less than 20 individuals totaling 230 burials.

In summary, the Coastal Strip and Plain of south Texas offer much in the way of comparative data. Although sample sizes are generally limited and the preservation of the skeletal remains in this region is poor, there are a minimum of 2249 individuals available for comparative research. This large estimate is tempered by sampling and recovery difficulties, a finding expressed by Steele et al. (1999). At the same time, the large size and antiquity of Buckeye Knoll provides an essential component to the earliest phase of human occupation in this area. In essence, the Buckeye Knoll sample would provide the baseline estimate for human biocultural adaptation along the Texas Gulf Coastal plain.

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of the samples consist of two burials and 66 samples consist of three burials. Large samples are relatively rare and only ten sites have more than 50 burials for a total of 1,127 individuals. Of the dated materials in this subset, the mean date is 557 14C years BP and the maximum date is 730 14C years BP. There are 36 sites totaling 173 individuals that are categorized as Anchaic. Of these, only nine have more than single burials. A very small number of sites contain more than 100 burials, including the Morhiss site (Victoria County, n=250), Ernest White site (Austin County, n = 242) and the materials from Loma Sandia (Live Oak County, n=182), and Calle Del Oso (Nueces County, n = 152). All of these sites are important from a comparative perspective given their geographic proximity to Buckeye Knoll and chronological placement. The remainder of the sites with more than 100 individuals are all from the Caddo area and come from Camp, Upland, Marion, and Red River counties which are less proximate both temporally and spatially to Buckeye Knoll. The vast majority of the sites in this survey have not had even the most basic skeletal inventory on the materials recovered. For most of the sites (n=472) there is no evidence of investigation short of noting the presence of human skeletal material or fragments of human skeletal material. For an additional 348 sites, the survey notes that no inventory or study was undertaken, for 104 sites there is some indication of partial inventory and some data collection and for only 30 sites is there an indication that the information would allow comparison to other samples. Clearly, there is a substantial analytical potential with other Texas materials and much of this potential remains untapped due to a relative absence of intensive detailed study of many of the most important samples already excavated. We are in the process of collecting the publications for all reports containing skeletal data and the first step will be to collect the existing information and incorporate it into the databases maintained at Florida State University. Reports of the paleopathological information will also be acquired and will require creation of an additional database structure.

Regional Significance and Potential

In the preceding discussion we attempted to evaluate the significance of the Buckeye Knoll site within the context of the North American continent as a whole. It should be clear from this discussion that the sample represents one of the largest and oldest North American samples found to date, and, therefore, holds great potential in the information it can provide about the earliest inhabitants of the New World. At a more regional level, however, Buckeye Knoll also demonstrates great potential for increasing our understanding of the prehistory of the Texas Gulf Coast through bioarchaeological study. However, a descriptive inventory of a skeletal sample is just that, and the most important considerations are comparative in nature. The purpose of this review is to discuss the comparative samples of skeletal remains from Texas sites to provide some indication of the type and quality of data available for problem-oriented research.

Our compilation of the data produces results similar to those of Steele et al. (1999). We summarize the basic information on sample size and site antiquity for each of the three study regions in Table 1. The samples most germane to this project are located in Region 1, which is represented by 103 samples. The sample sizes are, as expected, extremely variable ranging from isolated finds to samples with 250 individuals. The descriptive data indicate a mean size of 12

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Table 1 Descriptive Statistics for Sample Size and Sample Age for Geographic Regions

	Region 1		Region 2		Region 3	
	Burials	Date BP	Burials	Date BP	Burials	Date BP
Number with Data	105	18	71	5	703	391
Minimum	1	180	1	200	1	100
Maximum	250	2275	242	4875	201	10475
Median	3	500	2	2375	1	500
Mean	12	625	14	2135	5	1057
99% Upper of Mean	20	970	27	5849	6	1248
99% Lower of Mean	4	280	3	1600	3	866
Standard Deviation	30	504	38	1804	16	1460

Bibliographic Overview

As part of the literature survey for Texas we have developed a bibliography with slightly over 300 citations generally pertaining to Texas skeletal material. Of these references (all of which are in the process of obtaining) 218 appear to contain some type of specific skeletal information. From first hand experience some of these citations merely note the presence of skeletal material and in reality provide little data of comparative utility. We have identified fewer than 30 reports which contain useable comparative data (mostly metrics particularly for crania and long bones). As noted, we are in the process of obtaining these reports in an effort to augment the existing comparative databases. It is also recommended that an important part of any bioarchaeological study of these materials include provisions for acquisition of appropriate comparative data from the most pertinent comparative samples. This will substantially improve the comparative rigor of any investigations.

CONCLUSION

The rarity of materials as old as Buckeye Knoll, and with potentially as many individuals as there appear to be, is striking. This is true whether examining Texas, all of North America, or even a brief consideration of the existing international skeletal inventories. Other older samples do exist and larger samples do exist. However, sample as large as and as old as Buckeye Knoll are exceedingly rare regardless of the comparative perspective.

In a comparison incorporating information of some sort on over 60,000 individuals primarily from North America but also including materials from Europe, Japan and Africa, fewer than 900 individuals are as old as those from Buckeye Knoll. This constitutes less than 1.5% of all the materials included in the tabulation. The Buckeye Knoll materials constitute an amazing 8.3% of the materials included in this older data set. It is clear that most skeletal samples—regardless of geographic origin, date to much more recent time periods, particularly from the last—

2,000 years. Two factors seem both obvious and important in these distributions, one is simply the dramatic increase in global populations in the last 2,000 years. Secondly, the older the material is the more likely it is to disappear from the archaeological record through physical deterioration. Any comparative study should be aimed at amassing information on samples of similar or greater antiquity. This will allow a more useful and accurate assessment of how Buckeye Knoll compares to other early samples regardless of geographic origin. Such an effort would substantially improve our understanding of these early peoples.

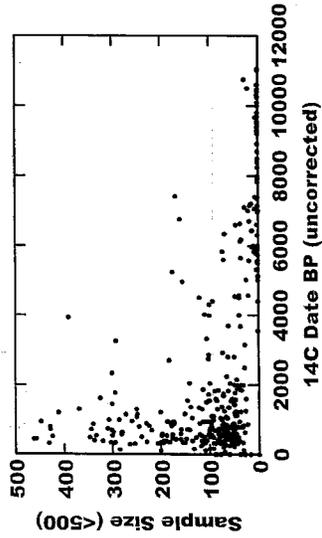
It is also clear that there are other, much more recent skeletal samples in Texas, which will provide valuable comparative information. Some of these materials such as those from the Morhiss Mound site and Blue Bayou are geographically close (within a few kilometers) and others are from more distant locations. They can provide an opportunity to consider evolutionary events within a circumscribed geographic area as well as placing the Buckeye Knoll in a broader regional, national and even international perspective.

The older skeletal material from Buckeye Knoll compromises an astonishingly large portion of the North American human remains older than 6000 years BP and is of unparalleled scientific importance in understanding the lives of the some of the earliest peoples of the New World. Human skeletal material provides the only way to expand our understanding of the biology of past peoples and as such is, has been, and will continue to be an important part of the archaeological record.

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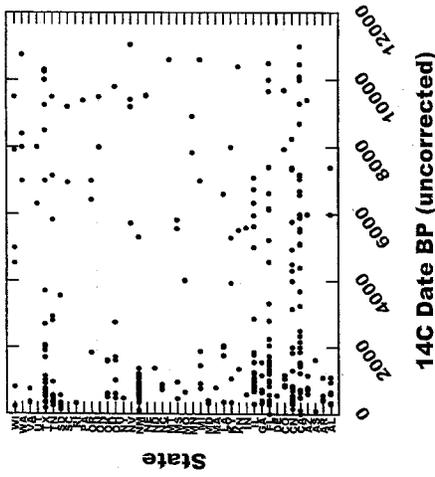
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Sample Sizes by 14C BP



Samples as large as Buckeye Knoll are very rare in general and when the antiquity of the site is considered the scientific importance of the Buckeye Knoll material is even more obvious. This figure includes information on over 45,000 individuals from over 300 sites in North America. This uses the NORTH database discussed previously (including the Canadian materials).

Sample 14C Dates by State



Texas ranks as one of the states with a large number of skeletal samples suitable for osteological investigation. Many of these samples would provide excellent comparative samples with which to frame a variety of important bioarchaeological questions. This illustration also uses the NORTH database (including Canadian materials).

The testing established that areas of the site containing significant archaeological deposits and human remains will not be affected by channel widening. Portions of the site that will be impacted by construction were found to have been disturbed and contained no intact deposits. No additional excavation will be required because the channel-widening project can be constructed without impacting archeologically significant portions of the site.

HUMAN REMAINS

The burial portion of VT98 will not be impacted by either direct or indirect construction impacts. The extremely significant portion of the site produced approximately 79 burials dating primarily to the Early Archaic period (circa 5,000 to 7,000 years of age). Additional burials at VT98 remain unexcavated. When it became apparent that this site met criteria for National Register eligibility, the Corps ceased excavation. In consultation with the SHPO, all open excavation units were completely excavated, and all exposed burials were recovered. In order to protect the site and remaining burials, the excavation units were carefully backfilled, and a fence was erected around the site by DuPont. In addition, DuPont regularly monitors the site to ensure no unauthorized access.

The site is clearly extremely significant because of its age, the large number of early human burials, the rare grave goods, and the long length of time represented by its multiple components. Research conducted by Florida State University under contract to the Corps has determined that the site contains the third largest sample of prehistoric human remains of this age found in the United States.

All materials recovered from the site including artifacts, human remains and associated grave goods, and field documentation are currently held in an archeological laboratory in Corpus Christi, Texas. Care has been taken to ensure that all human remains are stored securely and maintained appropriately to prevent any deterioration. The Corps has directed CEI to complete an inventory of all remains and artifacts excavated from the site, and research continues to further define the significance of VT98. The Corps is committed to completing the work initiated on VT98. A technical report of site testing and analysis will be produced by the Corps upon completion of consultation and coordination. The Corps will pay for curation and accessioning of the collection into a curatorial facility if DuPont chooses to donate or loan the collection for such purposes.

OPPORTUNITIES FOR COMMENT

In consultation with the Texas SHPO and DuPont, the Corps initiated consultation with Native American tribes concerning the human remains recovered from the site. Because VT98 is located on private, not federal, property the Native American Graves and Repatriation Act (NAGPRA) does not apply to these remains. Tribal consultation is being pursued by the Corps under the NHPA and 36-CFR-800. This regulation provides for consultation with any interested party. In contrast to NAGPRA, once consultation is complete, the decision on the level and extent of analysis and reporting

**U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT
CHANNEL TO VICTORIA PROJECT
CALHOUN AND VICTORIA COUNTIES, TEXAS**

FACT SHEET

ARCHEOLOGICAL SITE 41VT98 (THE BUCKEYE KNOLL SITE)

January 10, 2002

PROJECT OVERVIEW

Archeological site 41VT98, also known as the Buckeye Knoll Site, is located on the Channel to Victoria, an existing navigation channel that is being widened and deepened by the U.S.-Army Corps of Engineers, Galveston District (Corps). The local sponsors of the project are the Victoria County Navigation District (Port of Victoria) and the West Side Calhoun County Navigation District. The channel extends about 35 miles from the Gulf Intracoastal Waterway through San Antonio Bay to a turning basin, 7 miles south of the city of Victoria. The channel roughly parallels the Guadalupe River, and provides light draft navigation to industries located along the channel. The Corps maintains the channel.

The archeological site is located on property owned by DuPont Corporation (DuPont). The Corps has access to the property through a real estate easement that conveys limited rights for activities related to the construction and operation of the channel.

CURRENT INVESTIGATIONS AT SITE 41VT98

National Register testing of VT98 was undertaken by the Corps in the fall of 2000 and spring of 2001 because of potential impacts to the site from channel widening. Coastal Environments, Inc. (CEI) conducted the work under contract to the Corps. Permission for excavation was obtained from DuPont, the property owner.

All cultural resource work on the Channel to Victoria is conducted in compliance with the National Historic Preservation Act (NHPA), its implementing regulations (36-CFR-800), and a Programmatic Memorandum of Agreement (PMOA) negotiated in 1990 between the Corps, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation.

Site testing was conducted to determine the extent and significance of the site, and to determine if intact cultural deposits would be effected by deepening and widening of the channel. The testing documented that the site is a significant, multi-component prehistoric site dating from the Paleoindian through Late Prehistoric Periods (approximately 12,000 through 1,000 years ago).

rests with the Corps. The extent to which the Corps' decisions are implemented, and the final disposition of the collection, will be determined in consultation with DuPont, the owner of the collection.

This website has been established to disseminate information on VT98 and to provide access for public comment. In addition to initial consultation, a public workshop is planned for early spring 2002 in Victoria to provide information on the site, and to provide an opportunity for members of the general public and archeological community to express their concerns and opinions. The time and place for this workshop will be announced on this website and published in newspapers and other appropriate forums. The public is encouraged to attend this workshop and to provide written comments directly to the Corps either by email, or to the following address:

Colonel Leonard D. Waterworth
District Engineer
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX 77553

In addition, all questions concerning site VT98 submitted electronically will be answered. Please submit your inquiries to Carolyn Murphy, Chief, Environmental Section, at carolyn.e.murphy@usace.army.mil.

At the conclusion of consultation the Corps will make a decision on the level of analysis and reporting of VT98. No decisions or agreements have been made between the Corps and any other parties concerning VT98. The Corps will not make a decision until all consulting parties have been afforded the opportunity to comment. It is our sincere desire to consider and address as many of the competing interests in this issue as possible without compromising either the inherent sensitivity of dealing with human remains, or the scientific importance of this remarkable site.

U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT
CHANNEL TO VICTORIA PROJECT
CALHOUN AND VICTORIA COUNTIES, TEXAS
SUPPLEMENTAL INFORMATION
ARCHEOLOGICAL SITE 41VT98

January 11, 2002

PROJECT OVERVIEW

The Channel to Victoria, or Victoria Barge Canal, is a federal construction project constructed by the Galveston District, U.S. Army Corps of Engineers (Corps). The local sponsors are the Victoria County Navigation District and the West Side Calhoun County Navigation District. The channel extends about 35 miles from the Gulf Intracoastal Waterway in Matagorda Bay through San Antonio Bay to a turning basin 7 miles south of the city of Victoria. The channel roughly parallels the Guadalupe River, and provides light draft navigation to industries located along the channel. The Corps operates and maintains the channel.

The channel was constructed in 1965, prior to the enactment of the National Historic Preservation Act (NHPA) of 1966. There was no cultural resource investigation or coordination of the project prior to construction. State Historic Preservation Officer (SHPO) coordination of the project area pursuant to 36CFR800 (NHPA) was initiated by Galveston District in the early 1980's. In recognition of the fact that this project is located in an archeologically rich and important area where no investigations or coordination had been conducted, the Corps initiated a program of extensive surveys, historic and archival research, site investigations, and site mitigation for the Channel to Victoria that continues to the present. A list of reports resulting from this initiative can be found at the end of this fact sheet. A Programmatic Memorandum of Agreement (PMOA) was entered into by the Corps, SHPO, and Advisory Council on Historic Preservation (ACHP) in 1990 in anticipation of new construction on the channel. The PMOA applies to all Corps actions (operation, maintenance, and new construction) for the Channel to Victoria project.

CURRENT FEDERAL ACTION

The Corps is currently widening and deepening the Channel to Victoria from 9-feet by 100-feet to 12-feet by 125-feet. Construction of the channel improvements began in late 1998 and will conclude in 2002. A series of archeological surveys and site investigations were conducted by the Corps in conjunction with this work. Both construction impacts of channel widening and designation of new placement areas for

The original scope of work for site testing called for the excavation of forty (40) 2m by 2m blocks. Of these, thirty-six (36) 2m by 2m blocks were excavated and 79 burials were recovered. The burials are certain by a more recent midden deposit. The SHPO concurred that there was sufficient data upon which to determine National Register significance without completing the originally coordinated test excavation plan. Radiocarbon dating of bone dates the human remains at 5,000 to 7,000 years old, or Early Archaic. All artifacts, human remains, and site documentation are housed in an archeological laboratory in Corpus Christi, Texas. The collection is secure and is handled and maintained in accord with current professional standards by CEI under contract to the Corps. In response to Native American concerns, the human remains and associated grave goods are stored apart from the remainder of the collection, and each individual has been placed in a separate container. This has in no way compromised the provenience nor integrity of the human remains. The collection is not deteriorating. CEI is producing a detailed inventory of the nonmortuary portions of the collection, and a preliminary inventory of the mortuary collection. In addition, the advice of Dr. Glen Doran of Florida State University has been sought by the Corps, and a draft report addressing the significance of the human remains from VT98 has been submitted.

Site 41VT98 is located on property owned by DuPont Corporation (DuPont). The Corps has access to DuPont's property through a real estate easement that conveys limited rights for activities related to construction and operation of the navigation channel. DuPont owns the collection resulting from site testing, and has ultimate control over its final disposition. The Corps will pay for curation and accessioning of the collection into a curatorial facility in the event DuPont decides to donate or loan the collection for such purposes.

Because the site is located on private, not federal, land, the Native American Graves and Repatriation Act (NAGPRA) does not apply. The requirement for consultation with interested parties under the NHPA and 36CFR800 does. In compliance with federal law and the 1990 MOA for this project, and at the request of DuPont, the Corps initiated Native American consultation with ten federally-recognized tribes known to have an interest in coastal Texas, to solicit their comments on treatment and final disposition of the human remains. The Corps has suspended further processing and analysis of the collection, and in particular, further destructive analysis, until consultation is concluded. The decision to suspend analysis was based on the Corps' concern that consultation be conducted in good faith. Had the Corps continued with analysis before consultation with the tribes, this obviously would have precluded meaningful consideration of their interests. The initial tribal consultation meeting is scheduled in February 2002. In preparation for this meeting the Corps has directed CEI to produce a description of all relevant analyses that could be conducted on the collection, including the human remains. This information will be presented to the tribes so that any questions they may have concerning impact of the analyses on the human remains can be addressed, and so that the significance and information potential of the various analyses can be discussed.

dedged material were addressed. In several instances, placement areas were relocated or reconfigured to avoid prehistoric and historic sites along the channel. All of this work is cost-shared by the Corps (90%) and the local sponsors (10%). Routine SHPO coordination of this new construction work has been on-going since 1980 pursuant to 36CFR800 and the PMOA. The SHPO has reviewed and been provided the opportunity to comment on all scopes of work for survey, archival research, and site investigations, and has reviewed all draft technical reports.

SITE 41VT98

There is a long history of interest in and investigation of VT98 by the Corps and others that will not be related here, but can be found in the reports listed at the end of this document. National Register listing on VT98, also known as the Buckeye Knoll Site, was initiated by the Corps in November 2000 to address the area of potential construction impacts of channel widening, to determine National Register significance, and to obtain sufficient information on the site to develop a mitigation plan in the event that construction impacts could not be avoided. All work has been conducted by Coastal Environments, Inc. (CEI), under contract to the Corps. Site testing confirmed that VT98 is a significant, multi-component prehistoric site containing cultural deposits dating to the Paleoindian through Late Prehistoric Periods (12,000 through 1,000 years ago).

As a result of this testing, it was determined that the area of direct construction impacts along the west bank of the channel does not contain any in situ archeological deposits. Original channel construction in 1965 impacted the site to such an extent that no intact archeological deposits remain immediately adjacent to the existing channel. Test excavation of this eastern-most portion of VT98 (on the west bank of the channel) included 12 backhoe trenches, excavation of three 2m by 2m units, 12 shovel tests, and a magnetometer survey to identify subsurface features. The Texas SHPO concurs that no additional site testing or data recovery is necessary for this disturbed portion of VT98.

Testing of the remainder of the site to determine National Register significance and define a mitigation plan should not be necessary. Identified the extensive mortuary complex that is the subject of current interest. No previous site testing had identified burials at VT98. When it became apparent that extensive human remains were present, that both direct and indirect construction impacts to the mortuary portion of the site could be avoided, and that the site was obviously eligible for the National Register, the decision was made by the Corps to cease test excavations. A coordination meeting with the SHPO was held in May 2001, and the decision was made to: complete excavation of all open units; completely excavate all exposed burials; not expose and excavate additional burials; and not continue opening new block excavation units. This modified work was completed by CEI in July 2001. At the conclusion of excavation, the open units were carefully backfilled and the site was fenced by DuPont. A large portion of the site remains unexcavated and is known to contain additional burials.

In addition to tribal consultation, the Corps will sponsor a public workshop in early spring 2002 in Victoria, at which the general public and the interested archeological community can obtain additional information on the project and express their concerns and viewpoints. Any interested member of the public is invited to provide their written comments on this undertaking to:

Colonel Leonard D. Waterworth
District Engineer
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX 77550

We will also answer your questions concerning site VT98 submitted electronically to Carolyn Murphy, Chief, Environmental Section, at carolyn.e.murphy@usaca.army.mil.

FUNDING

All work conducted by the Corps on the Channel to Victoria over the last 20 years has been paid for by the Corps and the local sponsors of the project. All work on VT98 has likewise been paid for by the Corps. The Corps is committed to completing the analysis and reporting of the current testing of site 41VT98, and curating the collection at the discretion of DuPont. Neither DuPont nor the Texas SHPO bear any financial responsibility for testing of VT98, its analysis, reporting, and curation in conjunction with the Corps' construction project.

THE DECISION PROCESS

No final decisions have been made by the Corps in regard to VT98. There are no agreements between the Corps and other individuals or organizations pertaining to VT98 other than the existing 1990 PM/OA.

The Corps is currently faced with conflicting interests, issues and demands in regard to VT98. The consultation process of 36CFR800 will be followed. All interested parties will be heard. At the conclusion of consultation, the Corps will weigh the concerns and recommendations of the SHPO, DuPont, Native Americans, scientists, and the public in determining the nature and extent of further analysis of the VT98 collection and human remains. The decision on the level and extent of analysis and reporting rests with the Corps. The extent to which the Corps' decisions are implemented, and the final disposition of the collection, will be determined in consultation with DuPont, the owner.

We ask you to bear in mind that consideration of different viewpoints, needs, and concerns does not necessarily have to result in the total subjugation of one group's interests over another's. The Corps is fully aware of the scientific significance of this site. The Corps is also concerned that Native Americans be provided the opportunity to participate in the process to insure that those remains are treated with dignity and

respect. And, most importantly, as steward of this site, DuPont bears significant responsibility in reaching its decisions concerning the current collection and the future of the site.

FUTURE WORK

The Corps does not propose any additional excavations (over that described above) at 41VT98. Site investigation and mitigation can only be justified to address impacts resulting from Corps projects. The current widening and deepening of the Channel to Victoria has resulted in a channel that is now equivalent in dimensions to the Gulf Intracoastal Waterway. It is unlikely that further widening and deepening of the federal Channel to Victoria project will occur in the near future. Because of the site's significance, every attempt will be made to avoid future impacts to the site resulting from Corps construction, operation, and maintenance of the channel.

Corps Districts do not have legal authority or funding to conduct pure research. All work must be directly related to project activities and impacts. Further excavation at this extremely important site will require funding from sources other than the Corps, and obviously, permission from the land owner, DuPont.

TECHNICAL REPORTS PRODUCED BY THE CORPS FOR THE CHANNEL TO VICTORIA PROJECT:

Gadus, E. et al.
1993 Archeological Survey of Portions of the Channel to Victoria Project Area, Calhoun and Victoria Counties, Texas. Reports of Investigations No. 92, Prewitt and Associates, Inc., Austin

1999 National Register Testing of Prehistoric and Historic Sites and Survey of Placement Areas, Channel to Victoria, Calhoun and Victoria Counties, Texas. PAI Report No. 121, DACW64-94-D-0008, D.O. 0009, Prewitt & Associates, Inc., Austin.

Nash, M.A.
2001 National Register Testing of Site 41CL76, Calhoun County, Texas. COE DACW64-97-D-0004, D.O. 0002, PBS&J, Inc., Draft (December 2001).

Weinsteil, R.A.
1992 Archaeology and Paleogeography of the Lower Guadalupe River/San Antonio Bay Region: Cultural Resources Investigations Along the Channel to Victoria, Calhoun and Victoria Counties, Texas. COE DACW64-87-D-0004, D.O. 0007, CEI, Baton Rouge.

1999 Archaeological Investigations at the Guadalupe Bay Site (41CL2): Late Archaic Through Historic Occupation Along the Channel to Victoria,

Calhoun County, Texas - Vols. 1-5, Draft Copy - DACW/64-91-D-0009,
Delivery Orders 002,0006, and 0011, CEI, Baton Rouge.

**Advisory
Council On
Historic
Preservation**

The Clinton Center Building
100 Pennsylvania Avenue, NW #908
Washington, DC 20004

Reply to: Mr. Sherman, Street, 4740
Colonel, Calhoun #908

July 25, 1990

Colonel Erik P. Miller
District Engineer
Galveston District
Corps of Engineers
P.O. Box 1229
Galveston, TX 77553-1229

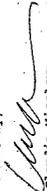
REF: Programmatic Agreement regarding the Proposed Enlargement of
the Channel to Victoria, and Victoria and Calhoun Counties,
Texas

Dear Colonel Miller:

The enclosed Programmatic Agreement regarding the Proposed
enlargement of the channel to Victoria, and Victoria and Calhoun
Counties, Texas, has been accepted by the Council. This action
constitutes the comments of the Council required by Section 106 of
the National Historic Preservation Act and the Council's
approval of the Programmatic Agreement. The Council's
State Historic Preservation Officer and your Federal Preservation
Officer.

The Council appreciates your cooperation in reaching a satisfactory
resolution of this matter, and we look forward to working with you
in the future.

Sincerely,


Claudia Miskley
Director, Western Office
of Project Review

Enclosure

III. Project-Specific Historic Preservation Procedures

A. Identification of Historic Properties:

As soon as an action meeting the scope of stipulation I of this Agreement is proposed, the COE shall identify, in consultation with the Texas SHPO, historic properties potentially affected by the proposed action. All historic properties identified shall be included in the project plan. The undertaking shall be designed in consultation with the Texas SHPO and shall be in accordance with the Secretary of the Interior's "Standards and Guidelines for Archeology and Historic Preservation" (48 Federal Register 44716-44740; September 23, 1983) "Standard and Guidelines," hereinafter, "Standards and Guidelines for Identification" contained in the National Register of Historic Places Regulations (36 CFR Part 600), and the Commission's "Guidelines for Identification" contained in the Commission's "Guidelines for Identification" comment in accordance with stipulation V of this Agreement.

B. Evaluation of Properties for Eligibility for Inclusion in the National Register of Historic Places:

The COE shall evaluate all identified properties that could be affected by proposed action, in consultation with the Texas SHPO, to determine which properties are eligible for inclusion in the National Register. The COE shall use the "Standards and Guidelines," particularly the "Standards and Guidelines for Evaluation" contained therein, to evaluate the COE and the Texas SHPO. The COE shall submit a written report to the Texas SHPO. The report shall be deemed conclusive for the purposes of this Agreement. Should the COE and SHPO not agree regarding the eligibility of a property, the COE shall seek a formal determination of eligibility from the Keeper of the National Register in accordance with applicable National Park Service regulations. The COE shall submit a written report to the Texas SHPO regarding the results of the determination. The COE shall seek formal determinations of eligibility from the Keeper of the National Register.

C. Preservation Plan:

The COE shall ensure that a reasonable and good-faith effort is made to design project activities on the Channel to Victoria to avoid damage to any historic property. This effort should include the development of a plan, in consultation with the SHPO, that specifies how historic properties in the project, including those already affected by the project, will be protected. The plan should include provisions for archaeological archaeologists and other interested parties are afforded an opportunity to participate in the implementation of survey, evaluation, and treatment efforts, as well as any monitoring and site stewardship activities that are appropriate. The plan, to be developed prior to new construction, shall be subject to the approval of the Texas SHPO. The Texas SHPO shall have 30 days after receipt of the plan, to comment on the plan. The COE shall ensure that the plan is implemented.

PROGRAMMATIC AGREEMENT

Among the Corps of Engineers, Galveston District, the Texas State Historic Preservation Officer, and the Advisory Commission on Historic Preservation, Channel to Victoria, Calhoun and Victoria Counties, Texas

WHEREAS, the Galveston District, Corps of Engineers (COE) has determined that proposed new construction on the Channel to Victoria, Calhoun and Victoria Counties, Texas may have an effect on properties included in or eligible for inclusion in the National Register of Historic Places and has requested the comments of the Advisory Council on Historic Preservation (Council) and the Texas State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act (16 USC 470) and the implementing regulations, "Protection of Historic Properties," (36 CFR Part 600) and

WHEREAS, the COE proposes to administer the Channel to Victoria Project authorized by the River and Harbor Act of 1964, and

WHEREAS, the COE, the Texas State Historic Preservation Officer, and the Council agree that it is advisable to accomplish compliance with Section 106 and the Council's regulations through the development and execution of this Programmatic Agreement (PA) in accordance with 36 CFR Section 800.13;

NOW, THEREFORE, the COE, the Texas SHPO, and the Council agree that the undertaking shall be subject to the following stipulations in order to take into account the effect of the undertakings on historic properties and to satisfy the COE's Section 106 responsibilities for all individual undertakings of the project.

STIPULATIONS

The COE shall ensure that the following measures are carried out:

I. Applicability of this Agreement:

The Agreement shall be applicable to all new construction actions related to or within the Channel to Victoria that are directly undertaken by the COE. Further, this Agreement shall be applicable to historic properties located within the project area. The Agreement shall be applicable to historic properties that are owned by the COE. This Agreement shall be applicable to areas to be dredged or otherwise altered due to COE new construction actions including all staging areas, the initiation of new or extension of existing disposal areas, existing facilities to be relocated, and areas affected by wildlife mitigation and the creation of freshwater marsh.

Execution and implementation of this Programmatic Agreement evidences that the COE has afforded the Council a reasonable opportunity to comment on the findings and their effects on historic properties in the State of Texas. The findings and their effects on historic properties in the State of Texas, the SIFPO and the Council signatories and will remain in effect until terminated by any party to the Agreement by 30 days prior written notice to the other parties.

U.S. Army Corps of Engineers, Galveston District
BY: Frank V. Miller
Frank V. Miller, Commander
10 May 1990
(date)

Texas State Historic Preservation Officer
BY: James L. Bussett, Ph.D.
James L. Bussett, Ph.D.
6/21/90
(date)

Advisory Council on Historic Preservation
BY: Robert Bush, Ph.D.
Robert Bush, Ph.D.
7/6/90
(date)

IV. Review and Compliance

A. Project Monitoring:

The Council and the Texas SIFPO may monitor activities pursuant to this PA, and the Council will review such activities if so requested. The COE will cooperate with the Council and the SIFPO in carrying out their monitoring responsibilities.

B. COE Compliance:

If the COE does not carry out the terms of this Agreement, COE will not take or sanction any actions or make any irreversible commitment that would be in violation of the National Register within the scope of this Agreement or would otherwise be in violation of the Council's consideration of avoidance or mitigation alternatives until it has obtained the Council's comments, pursuant to the Council's regulations, for each individual action carried out as part of the overall undertaking.

V. Dispute Resolution:

If a dispute arises regarding implementation of this Agreement, the COE shall attempt to resolve the dispute through the dispute resolution process. If the party determines that the dispute cannot be resolved, the COE shall request the further comments of the Council pursuant to the Council's regulations and shall forward all documents and information relevant to the dispute to the Council. Within 30 days after receipt of all relevant documentation, the Council shall either:

1. Notify the COE that it concurs in the COE's position regarding the matter;
2. Notify the COE of changes that would make their position acceptable to the Council and, provide that the COE agrees with the changes, the dispute would be resolved; or
3. Notify the COE that it will comment in accordance with 36 CFR Section 800.5(b).

VI. Programmatic Agreement Revision

The parties to this Agreement may consult at any time to review implementation of the terms of this Agreement and determine whether revisions are needed.

If any of the signatories to this Agreement determines that the terms of this Agreement cannot be met or believes that a change to it is necessary, that signatory shall request immediately the consulting parties to consider such a change. The request shall be presented in the same manner as this original Agreement. In the event of termination, the COE will comply with 36 CFR 800.4 through 800.6 with regard to individual undertakings covered by this Agreement.

LIST OF POTENTIAL ANALYSES FOR SITE 41VT98

NON-MORTUARY (MIDDEN) MATERIALS

1. *Standard, Basic Archaeological Analyses* (all features, artifacts and fauna remains).

A. Full inventory of all non-mortuary materials (counts by excavation units and levels).

Purpose: Understanding how various kinds of materials are distributed on the site in order to learn how people carried out activities, and how such activities may have changed over time. The main classes of materials include tools; tool-manufacturing debris; burned clay representing hearths and cooking; animal bone refuse, clam and oyster shells.

B. Faunal bone analysis. Involves visual identification of bone elements of the various mammal, reptile, bird and fish species hunted or gathered and eaten.

Purpose: To learn what animal species were more, or less, important in prehistoric economies of the people who lived at the site; to learn how hunting and food-collecting activities may have changed over time in response to long-term environmental changes (probably over the last 12,000 years).

C. Seasonality Studies. Involves microscopic observation of seasonal growth patterns on oysters, and microscopic observation of seasonal growth patterns in fish otoliths (small mineral and protein concretions in fish skulls).

Purpose: To determine how people at the site collected animal foods resources from the river and coastal estuaries according to seasons.

D. Radiocarbon dating. Involves standard radiocarbon dating technique performed on small samples of animal bone, shell and charcoal. Samples are burned in the radiocarbon lab and converted to gas; relative counts of the Carbon 14 isotope are derived from the gases. Age of materials is calculated according to the amount of C14 that has decayed over time to C12.

Purpose: To obtain ages on various cultural levels in the site and thus to reconstruct the history of site occupation in terms of real time.

OPTIONS FOR VT98 ANALYSIS AND DISPOSITION

The Corps is required to complete analysis and reporting of site 41VT98 in order to comply with Section 106 of the National Historic Preservation Act. We are in the process of developing an analysis strategy and are considering a range of analysis options for 41VT98 which are listed below. We would like to hear your opinions and concerns about them. This list is not intended to express the full range of options but can serve as a starting point for our discussions and consultations.

Temporary Storage: How and where should the remains and associated grave goods be treated and stored while issues of analysis and disposition are being decided?

Mortuary vs. Non-Mortuary Materials: Site 41VT98 is a multi-component site with non-mortuary layers both above and below the mortuary layer. Would you consider different treatment and disposition plans for site materials from non-mortuary and mortuary contexts at the site? For example, would you support full analysis and curation of the artifacts and samples from non-mortuary contexts?

Analysis: We wish to discuss and determine what level of analysis you would support for the materials removed from site 41VT98. A list of archeological analytical techniques which could be applied to all site materials is attached to aid in this discussion. If some form of analysis of the human remains were to be conducted, are there any restrictions or procedures that would make the process more acceptable?

Disposition: DuPont Corporation has indicated that it would be willing to allow removal of site materials on its property near, or within, the site of origin. Would you support the removal of the remains on or near site VT98 on property owned by DuPont? If so, are there any special requirements, what kinds of specific arrangements would you like to see to fulfill cultural or ritual requirements?

Curation: Would you support curation of the collection in a museum or curatorial facility? If so, what materials would you find acceptable for curation?

Report: The Corps will produce a technical report of findings on the test excavation of 41VT98. Do you have any concerns regarding the presentation of information relating to the human remains and associated grave goods?

- E. Macrobotanical (plant) identifications. Involves visual identification of plant remains that were carbonized by fires and preserved in the deposits of camp debris. The samples will be obtained from water-floatation of site soil samples collected for this purpose during excavation.
- Purpose: To learn about the kinds of plant foods collected and used by the ancient people who lived at the site.
- F. Use-wear study on stone tools. Involves non-destructive microscopic observation of wear patterns on edges of tools.
- Purpose: A better understanding of how different kinds of tools were used.
2. *Chemical Residue Studies on Stone Artifacts.* Involves chemical removal of traces of organic substances left on the surface of projectile points, knives, scrapers and other tools and identification of the kinds of plants and animals tools were used to obtain and process. The procedure is non-destructive and does no damage to artifacts.
- Purpose: To learn what plant and animal species were obtained, butchered, processed with which kinds of tools. This helps in understanding how different tools were used.
- MORTUARY MATERIALS** (human remains and associated grave goods)
1. *Cleaning and Inventorying.* This involves:
- A. Light dry brushing of bones. No washing is necessary or even desirable of these materials many of which are fragile.
- Purpose: To enable accurate observations of materials.
- B. Inventory of remains. Involves visual examination of human remains.
- Purpose: To find out the number of individuals represented and their gender and approximate age.
- C. Identification of kinds of activity-related physical stresses and diseases that may have affected bone growth.
- Purpose: To learn about the conditions of life that affected the physical health of the population.
- D. Identification of characteristics of bone, tooth shapes.
- Purpose: To understand how the people buried at the site were biologically related to other groups of the time period in question as well as to later Native American populations.
- E. Photo Documentation.
- Purpose: To have a permanent record of the human remains prior to repatriation and reburial.
- F. Inventory of artifacts associated with burials. Involves documentation of types of artifacts and recording of their lengths, widths and thickness.
- Purpose: To have a permanent record of the types, sizes and shapes of these materials.
- All of the above are inventorying standard procedures that are non-destructive.
2. *Analyses*
- A. X-ray of selected bones to identify growth-arrest patterns (this is a non-destructive technique).
- Purpose: To better understand the life cycle of individuals within the population.
- B. Radiocarbon dating. This employs the accelerator mass spectrometer (AMS) technique by which age of the sample can be obtained using a very small amount of material (approximately 1/4 inch by 1/4 inch in size).
- Purpose: To accurately determine the age of the cemetery at the site and the range of time during which it was used. Also, importantly, to have a reliable age for the culture and population so as to be able to learn if and how, these people may have been related to other early North America groups.
- C. Stable Isotope Study. To determine the proportions of carbon and nitrogen isotopes in the bone. Involves AMS analysis of very small samples (approximately 1/4 inch by 1/4 inch in size).
- Purpose: Proportions of these isotopes provide important information on prehistoric diets. This will provide a better understanding of the kinds of food resources used and their relative importance in the diet of the people who lived at 41VT98.

D. DNA Studies. Involves use of small amounts of tooth pulp (tissue from inside a tooth) to identify the DNA.

Purpose: To provide insights into out how closely the early population at this site was related to other early North American people and to later Native populations.

ANALYSES CURRENTLY UNDERWAY

1. Geochronological Studies: Optically Stimulated Luminescence (OSL), dating of sand grains, particle size analysis, sourcing of non-cultural sediments, magnetic susceptibility of sediments. Involves various physical suites of non-cultural geologic sediments.

Purpose: Understanding the geologic history of the site and the surrounding landscape as it relates to the natural formation of the locale.

2. Pollen Analysis: Identification under microscope of fossil pollen grains and counting grains by plant species and radiocarbon dating of pollen samples. Involves study of samples from 2-inch sediment cores from off the site.

Purpose: Understanding the vegetation and climate history of the site in order to understand environmental changes over the past 12,000 years and how those changes may have affected the lifeways of the ancient inhabitants of the site and the region.



Channel to Victoria Project

Archeological Site 41VT98

Information on prehistoric archeological site 41VT98 (the Buckeye Koral Site) is provided through the links below. This remarkable site on the Channel to Victoria has produced artifacts dating from 12,000 to 1,000 years old, and a large Early Archaic cemetery dating from 7,000 to 5,600 years old. A process of public involvement is being pursued for this project in compliance with federal law and regulations. The involvement phase begins with the release of information on the site, reporting, and collection disposition until this process is complete. We invite your participation!

- [Fact Sheet](#)
- [Supplemental Information](#)
- [Programmatic Memorandum of Agreement](#)
- [Local Government Briefing 2/13/02](#)
- [Overview of the site, reporting, and collection disposition until this the tribal consultation conference on February 12, 2002](#)

Please send comments to:

Captain Leonard D. Waterworth
District Engineer
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX 77553

Please send questions to: carolyn.e.murphy@swg02.usace.army.mil



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<http://www.swg.usace.army.mil/po/41VT98/Default.asp>

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2/19/2002

Contact our Public Affairs Office
 SWG-Po@usace.army.mil
 P.O. Box 1229
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Webmaster:
 Tim Barmer, CESWG-1M
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Updated: February 19, 2002

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Archeological Site 41VT98 (the Buckeye Knoll Site)

Fact Sheet

Channel to Victoria Project
Calhoun and Victoria Counties, Texas

January 10, 2002

PROJECT OVERVIEW

Archeological site 41VT98, also known as the Buckeye Knoll Site, is located on the Channel to Victoria, an existing navigation channel that is being widened and deepened by the U.S. Army Corps of Engineers, Galveston District (Corps). The local sponsors of the project are the Victoria County Navigation District (Port of Victoria) and the West Side Calhoun County Navigation District. The channel extends about 35 miles from the Gulf Intracoastal Waterway through San Antonio Bay to a turning point in the Gulf of Mexico. The channel provides a safe and efficient route for the Guadalupe River, and provides light draft navigation to industries located along the channel. The Corps maintains the channel.

The archeological site is located on property owned by DuPont Corporation (DuPont). The Corps has access to the property through a real estate easement that conveys limited rights for activities related to the construction and operation of the channel.

CURRENT INVESTIGATIONS AT SITE 41VT98

National Register listing of VT98 was undertaken by the Corps in the fall of 2000 and site-specific testing and excavations to the site from channel widening. Cultural Enrichments, Inc. (CEI) conducted the excavations. The Corps. Permission for excavation was obtained from DuPont, the property owner.

All cultural resource work on the Channel to Victoria is conducted in compliance with the National Historic Preservation Act (NHPA), its implementing regulations (36 CFR 800), and a Programmatic Memorandum of Agreement (PMOA) negotiated in 1990 between the U.S. Army Corps of Engineers, Galveston District, and the Advisory Council on Historic Preservation.

<http://www.svg.usace.army.mil/jpe/41VT98/FactSheet.asp>

2/19/2002

Site testing was conducted to determine the extent and significance of the site, and to determine if intact cultural deposits would be affected by deepening and widening of the channel. Testing was conducted in the area of the site, and the results of the testing are contained in this fact sheet. The testing was conducted in the component prehistoric site dating from the Paleoindian through Late Prehistoric periods (approximately 12,000 years through 1,000 years ago).

The testing established that areas of the site containing significant archeological deposits and human remains will not be affected by channel widening. Portions of the site that contain significant archeological deposits and human remains were not included in this fact sheet. No additional excavation will be required because the channel-widening project can be constructed without impacting archeologically significant portions of the site.

HUMAN REMAINS

The burial portion of VT98 will not be impacted by either direct or indirect construction impacts. This portion of the site produced approximately 79 burials dating primarily to the Early Archaic period (circa 5,000 to 7,000 years of age). Additional burials at VT98 remain unexcavated. When it became apparent that this site met criteria for National Register eligibility, the Corps ceased excavation. In 1999, the Corps conducted a site visit to determine if any additional burials and all exposed burials were recovered. In order to protect the site and remaining burials, the excavation units were carefully backfilled, and a fence was erected around the site by DuPont. In addition, DuPont regularly monitors the site to ensure no unauthorized access.

The site is clearly extremely significant because of its age, the large number of early human burials, the site's location, and the long length of time represented by its multiple components. Research conducted by Florida State University under contract to the Corps has determined that the site contains the third largest sample of prehistoric human remains of this age found in the United States.

All materials recovered from the site including artifacts, human remains and other items were stored in a secure facility at the Corps' Galveston District archeological laboratory in Corpus Christi, Texas. Care has been taken to ensure that all human remains are stored securely and maintained appropriately to prevent any deterioration. The Corps has directed CET to complete an inventory of all remains and artifacts excavated from the site, and research continues to further define the site's significance. The Corps is committed to ensuring that the site remains protected and that the Corps will continue to work with the Corps upon completion of consultation and coordination. The Corps will pay for curation and accessioning of the collection into a curatorial facility if DuPont chooses to donate or loan the collection for such purposes.

OPPORTUNITIES FOR COMMENT

In consultation with the Texas SHPO and DuPont, the Corps initiated consultation with Native American tribes concerning the human remains recovered from the site. Because VT98 is located on private, not federal, property the Native American Graves and Repatriation Act (NAGPRA) does not apply to these remains. Tribal

<http://www.svg.usace.army.mil/jpe/41VT98/FactSheet.asp>

2/19/2002

consultation is being pursued by the Corps under the NHPA and 36-CFR-800. This workshop is planned for early spring 2002. In addition to initial consultation, a public workshop is planned for early spring 2002 in Victoria to provide information on the site, and to provide an opportunity for members of the general public and archeological community to express their concerns and opinions. The time and place for this workshop will be announced on this website and published in newspapers and magazines. The Corps desires to consider and address as many of the competing interests as possible. Please be prepared to attend in person, by telephone, and to provide written comments directly to the Corps either by e-mail, or to the following address:

Colonel Leonard D. Waterworth
 District Engineer
 U.S. Army Corps of Engineers
 Galveston District
 P.O. Box 1229
 Galveston, TX 77553

In addition, all questions concerning site VT98 submitted electronically will be answered. Please submit inquiries to Carolyn Murphy, Chief, Environmental Section, at carolyn.e.murphy@swg2.usace.army.mil.

At the conclusion of consultation the Corps will make a decision on the level of analysis and reporting of VT98. No decisions or agreements have been made between the Corps and any other parties concerning VT98. The Corps will not make a decision until all consulting parties have been afforded the opportunity to comment. It is the Corps' sincere desire to consider and address as many of the competing interests as possible. Please be prepared to attend in person, by telephone, and to provide written comments directly to the Corps either by e-mail, or to the following address:

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2/19/2002



Tim Baumer, CESWG-1M
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 Galveston, TX 77553-1229

Updated: February 01, 2002



Channel to Victoria Project

Archaeological Site 41VT98 (the Buckeye Knoll Site)

Supplemental Information

Channel to Victoria Project
Galveston and Victoria Counties, Texas

January 11, 2002

PROJECT OVERVIEW

The Channel to Victoria, or Victoria Barge Canal, is a federal construction project authorized by the National Historic Preservation Act (NHPA) of 1966. The project is located in Galveston County, Texas, and is managed by the Victoria County Navigation District and the West Side Calhoun County Navigation District. The channel extends about 3.5 miles from the Gulf Intracoastal Waterway in Matagorda Bay through San Antonio Bay to a turning basin 7 miles south of the city of Victoria. The channel roughly parallels the Guadalupe River, and provides light draft navigation to industries located along the channel. The Corps operates and maintains the channel.

The channel was constructed in 1965, prior to the enactment of the National Historic Preservation Act (NHPA) of 1966. There was no cultural resource investigation or coordination of the project prior to construction. State Historic Preservation Officer (SHPO) reports were prepared for the project in the late 1980s. In recognition of the fact that this project is located in an archeologically rich and important area where no investigations or coordination had been conducted, the Corps initiated a program of extensive surveys, historic and archival research, site investigations, and site mitigation for the Channel to Victoria that continues to the present. A SHPO report resulting from this research was prepared in 1990. In 1990, the Corps, SHPO, and the Victoria County Navigation District entered into a Memorandum of Agreement (MOA) with the SHPO. The MOA was entered into by the Corps, SHPO, and the Victoria County Navigation District in 1990 in anticipation of new construction on the channel. The MOA applies to all Corps actions (operation, maintenance, and new construction) for the Channel to Victoria project.

CURRENT FEDERAL ACTION

The Corps is currently widening and deepening the Channel to Victoria from 9-feet by 100-feet to 12-feet by 125-feet. Construction of the channel improvements began in late 1996 and will conclude in 2002. A series of archeological surveys and site investigations were conducted by the Corps in conjunction with this work. Both

construction impacts of channel widening and designation of new placement areas for dredged material were addressed. In several instances, placement areas were relocated or reconfigured to avoid prehistoric and historic sites along the channel. All of this work is cost-shared by the Corps (90%) and the local sponsors (10%). Routine SHPO coordination of this new construction work has been on-going since 1991 pursuant to 33CFR403.0 and the MOA. The Corps has also prepared a series of 1391 permit applications for all sites of work for survey, archival research, and site investigations, and has reviewed all draft technical reports.

SITE 41VT98

There is a long history of interest in and investigation of VT98 by the Corps and others that will not be repeated here. In 1965, the Corps initiated a National Register testing of VT98, also known as the Buckeye Knoll Site, was initiated by the Corps in November 2000 to address the area of potential construction impacts of channel widening, to determine National Register significance, and to obtain sufficient information on the site to develop a mitigation plan in the event that construction impacts could not be avoided. The testing was confirmed that VT98 is a significant, multi-component prehistoric site containing cultural deposits dating to the Paleoindian through Late Prehistoric Periods (12,000 through 1,000 years ago).

As a result of this testing, it was determined that the area of direct construction such as the channel widening and placement areas for dredged material, does not contain any in situ archaeological deposits. Original channel construction in 1965 impacted the site to such an extent that no intact archaeological deposits remain immediately adjacent to the existing channel. Test excavation of this eastern-most portion of VT98 (on the west bank of the channel) included 12 machine trenches, excavation to three 2m by 2m units, and 12 hand-dug units. The SHPO concurs that no additional site testing or data recovery is necessary for this disturbed portion of VT98.

Testing of the remainder of the site to determine National Register significance and define a mitigation plan should one be necessary, identified the extent of the mortuary identified burials at VT98. While it became apparent that extensive human remains were present, that both direct and indirect construction impacts to the mortuary portion of the site could be avoided, and that the site was obviously eligible for the National Register, the decision was made by the Corps to cease test excavations. A decision was made to complete excavation of all open units; completely excavate all exposed burials; not expose and excavate additional burials; and not continue opening new block excavation units. This modified work was completed by CEI in July 2001. At the conclusion of excavation, the open units were carefully backfilled and the site was fenced by dikeposts. A large portion of the site remains unexcavated and is known to contain additional burials.

The original scope of work for site testing called for the excavation of forty (40) 2m by 2m blocks. Of these, thirty-six (36) 2m by 2m blocks were excavated and 79 burials were recovered. The burials are overlain by a more recent number deposit. The SHPO concurs that there was sufficient data upon which to determine test excavation plan. Backfilling of some sites the human remains at 5,000 to

7,000 years old, or Early Archaic. All artifacts, human remains, and site documentation are housed in an archaeological laboratory in Corpus Christi, Texas. The site is currently under contract to the Corps. In response to Native American concerns, the human remains and associated grave goods are stored apart from the remainder of the collection, and each individual has been placed in a separate container. This has in no way compromised the provenience nor integrity of the human remains. The collection is not decreasing. CEI is providing an inventory of the collection to the Corps. CEI is providing a draft of the inventory of the mortuary collection. In addition, the advice of Dr. Glen Doran of Florida State University has been sought by the Corps, and a draft report addressing the significance of the human remains from V798 has been submitted.

Site 41V798 is located on property owned by DuPont Corporation (DuPont). The Corps has been advised by CEI that the site contains human remains and artifacts. CEI has provided advice related to construction and operation of the navigation channel. DuPont owns the collection resulting from site testing, and has ultimate control over its final disposition. The Corps will pay for curation and accessioning of the collection into a curatorial facility. In the event DuPont decides to donate or loan the collection for such purposes.

Because the site is located on private, not federal, land, the Native American Graves and Repatriation Act (NAGPRA) does not apply. The requirement for consultation with interested parties under the NHPA and 36CFR800 does. In compliance with federal law and the 1990 MOA for this project, and at the request of DuPont, the Corps initiated Native American consultation with ten federally-recognized tribes and five non-federally-recognized tribes. The Corps has suspended further processing and analysis of the collection, and in particular, further destructive analysis, until consultation is concluded. The decision to suspend analysis was based on the Corps' concern that consultation be conducted in good faith. Had the Corps continued with analysis before consultation with the tribes, this obviously would have precluded meaningful consideration of their interests. The decision to suspend analysis was made on February 20, 2002. In preparation for this meeting the Corps has directed CEI to produce a description of all relevant analyses that could be presented to the tribes so that any questions they may have concerning impact of the analyses on the human remains can be addressed, and so that the significance and information potential of the various analyses can be discussed.

In addition to tribal consultation, the Corps will sponsor a public workshop in early spring 2002 in Victoria, at which the general public and the interested archeological community can obtain additional information on the project and express their concerns and viewpoints. Any interested member of the public is invited to provide their written comments on this understanding to:

Colonel Leonard D. Waterworth
District Engineer
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX 77550

We will also answer your questions concerning site V798 submitted electronically to <http://www.svg.usace.army.mil/pe/41V798/Supp.asp> 2/19/2002

Carolya Murphy, Chief, Environmental Section, at carolya.murphy@usace.army.mil.

FUNDING

All work conducted by the Corps on the Channel to Victoria over the last 20 years has been paid for by the Corps and the local sponsors of the project. All work on the Channel to Victoria project is being funded by the Corps. The Corps is conducting the analysis and reporting of the current testing of sites 41V798, and curating the collection at the discretion of DuPont.

THE DECISION PROCESS

No final decisions have been made by the Corps in regard to V798. There are no agreements between the Corps and other individuals or organizations pertaining to V798 other than the existing 1990 MOA.

The Corps is currently faced with conflicting interests, issues and demands in regard to V798. The consultation process of 36CFR800 will be followed. All interested parties will be heard. At the conclusion of consultation, the Corps will weigh the concerns and recommendations of the SHPO, DuPont, Native Americans, scientists, and the public. The Corps will then make a decision on whether to proceed with collection and human remains. The decision on the level and extent of analysis and reporting rests with the Corps. The extent to which the Corps' decisions are implemented, and the final disposition of the collection, will be determined in consultation with DuPont, the owner.

We ask you to bear in mind that consideration of different viewpoints, needs, and concerns does not necessarily have to result in the total subjugation of one group's interests over another. The Corps is fully aware of the scientific significance of this site. The Corps is also concerned that Native Americans be provided the opportunity to participate in the process to insure that these remains are treated with dignity and respect. And, most importantly, as steward of this site, DuPont bears significant responsibility in reaching its decisions concerning the current collection and the future of the site.

FUTURE WORK

The Corps does not propose any additional excavations (over that described above) at 41V798. Site investigation and mitigation can only be justified to address impacts resulting from Corps projects. The current widening and deepening of the Channel to Victoria project is the only Corps project that will affect the Channel to Victoria Intra-coastal Waterway. It is unlikely that further widening and deepening of the federal Channel to Victoria project will occur in the near future. Because of the site's significance, every attempt will be made to avoid future impacts to the site resulting from Corps construction, operation, and maintenance of the channel.

Corps Districts do not have legal authority or funding to conduct new research. All work must be directly related to project activities and impacts. Further excavation at this extremely important site will require funding from sources other than the Corps, and obviously, permission from the land owner, DuPont.

TECHNICAL REPORTS PRODUCED BY THE CORPS FOR THE CHANNEL TO VICTORIA PROJECT:

<http://www.svg.usace.army.mil/pe/41V798/Supp.asp>

the public will be answered.

No decisions will be made by the Corps until this process of consultation and public participation is complete. If you have any questions, please contact the project manager. Your input and comments will be taken into consideration for the scientific, historical, cultural, and spiritual significance of this remarkable site.

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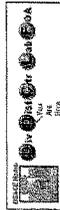
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Channel to Victoria Project

Archeological Site 41VT98 (the Buckeye Knoll Site)

By Dr. Robert Ricklis

The Buckeye Knoll site lies on a spur of high ground overlooking the lower Galvestone River floodplain. [Slide 1-site photo] This promontory is an erosional remnant of the Pleistocene Beaumont Formation, which was deposited about 12,000 years ago. The site is located on a spur of high ground overlooking the lower Galvestone River floodplain. During the late Pleistocene sea level rise due to the expansion of continental glaciers and coastal plain streams such as the Galvestone River downcut their valleys. The Buckeye Knoll site is located on the eroded Galvestone valley wall that resulted from such downcutting. By ca. 9,000-10,000 BP, rising early Holocene sea level caused inundation of the valleys coastline, resulting in the formation of the Galvestone River. The river has deposited sediments that have gradually filled the valley and built a delta into the upper bay.

As indicated by the distribution of archaeological sites on this map of the regional valley-margin settings such as that occupied by Buckeye Knoll were popular locations for Native Americans in central and southern Texas. The sites at the Buckeye Knoll site are thought to have developed in time with some portion of the long occupational sequence at Buckeye Knoll.

The Buckeye Knoll site was first noted by an avocational archaeologist who worked for Dupont when the Victoria Barge Canal was largely completed in the late 1930s and early 1960s. The canal cut through a portion of the site, redefining the site's boundaries. The site was first excavated in 1962 when it was recorded by Carolea Murray during a reconnaissance survey of the barge canal for the Corps of Engineers. The survey was intended to identify sites that might be impacted by maintenance dredging or erosion along the canal. The Corps of Engineers then funded a series of excavations to carry out test excavations at seven sites, one of which was Buckeye Knoll. In 1989 CEI excavated 67 auger borings, five backhoe trenches and three 1x1 m hand-excavated units at the site in an effort to identify its limits and to sample the cultural deposits located there. The results of that work indicated that intact cultural deposits were present on this local site. The Corps of Engineers then funded a series of excavations to carry out test excavations suggested that the deposits spanned the period from about 5000 years ago to only a few centuries ago.

About two years ago the Corps of Engineers began developing plans to widen the

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Channel to Victoria Project

Archeological Site 41VT98 (the Buckeye Knoll Site)

Local Government Briefing 2/13/02

Yesterday a tribal consultation meeting was held by the Corps of Engineers to address the analysis, reporting, and disposition of the collection from prehistoric archeological site 41VT98. Site excavation was completed by the Corps in conjunction with the widening and deepening of the Channel to Victoria. The site produced a large collection of artifacts dating from 3,000 to 12,000 years old, in addition, a large Early Archaic cemetery dating from 6,300 to 7,500 years old was identified. The site is located on the west side of the Channel to Victoria site near Site Calhoun County Navigation Districts. The Port of Victoria is hosting this briefing today.

Participants in the consultation meeting included representatives of the Corps of Engineers including Colonel Leonard Waterworth, District Commander, DuPont, the Port of Victoria, the Texas Historical Commission, and the following organizations: Alabama Coushatta, and Comanche Tribes. DuPont graciously hosted the meeting.

The purpose of the meeting was primarily informational. The Corps provided information to the tribes on our work at the site, the historic and scientific significance of the site, and the wide range of analyses that could be conducted on site materials. The tribes very broadly discussed the cultural and spiritual significance of the site and the importance of the site to their people. The Corps representatives expressed their desire to return to their tribes to discuss our information on the site with their elders and spiritual leaders. We will continue discussions with the tribes concerning analysis and disposition of the site collection.

This is but one part of the larger public participation process identified in the National Historic Preservation Act of 1966. In addition to consulting with federally recognized tribes, the Corps has also requested the Texas Archeological Society and Society for American Archaeology join us as consulting parties, to represent the interests and concerns of avocational and professional archeologists. A public meeting is scheduled in Victoria for February 26th at Victoria College. From 5-7pm an open house will be held where you can meet with Corps representatives. Archeologists with Coastal Enhancement Districts, the Corps, and other interested parties are invited to attend. If you have any questions, there will be a formal presentation on site excavation by Coastal Enhancement, followed by a Question and Answer session where questions submitted in writing by <http://www.svg.usace.army.mil/pe41VT98/briefing.asp>

Updated: February 01, 2002

<http://www.svg.usace.army.mil/pe41VT98/Supp.asp>

2/19/2002

2/15/2002

well-preserved pollen for reconstructing the vegetation history of the site. In summary, the Buckeye Knoll site explains important information for understanding the prehistory of the Central Texas coast and the surrounding larger areas of Early Archaic life in the south-central U.S. (Slide 19-key research topics) The major research topics include:

1. Regional culture history. The site has produced one of the most complete records of human occupation of any archaeological site on the Central Texas coast, including some 10,000 to 12,000 years of culture history. Identifiable periods include the Early, Middle, and Late Archaic, Middle Archaic, Late Archaic and Late Prehistoric. The vertical distributions of time-diagnostic dart points and other artifacts, particularly in the Knoll Top and West Slope areas, show that the cultural deposits are intact and contain discrete, identifiable components, all of which offers important evidence for assessing our understanding of long-term cultural development and change on the western Gulf coastal plain.
2. Environmental history and human ecology. Well-preserved and abundant animal bones from various deposits hold great potential for understanding the subsistence economies of the people who lived at Buckeye Knoll and how those patterns may have changed in response to environmental change. Pollen and other plant remains from many soil samples taken from midden strata may provide information on economically important plant resources. Moreover, the good pollen preservation found in nearby floodplain sediments is expected to provide a model of environmental change with which to interpret changes in human adaptation during the long history of occupation at the site.
3. Early Archaic bioarchaeology. The Early Archaic cemetery at Buckeye Knoll contains one of the three largest samples of early human remains from North America, and represents some 10 percent of all known individuals of this age or older from the continent. As such, these materials hold unique potential for understanding early populations in terms of their health, diet and biological affinity. The report by Dr. Douglas H. Owsen, dated 12/10/01, contains a detailed summary of the packet of information that all of you received. In essence, the report details the various types of analyses that could be conducted on the human remains and the information provided by each. Only 25-30 percent of the estimated cemetery area was excavated, and many more remains are undoubtedly present and should be preserved and protected in place.

The quantity and variety of artifacts associated with the Early Archaic burials are striking and reflect an impressive level of aesthetic and technical development in material culture on the western Gulf coastal plain by 7000 years ago. Moreover, these materials appear to represent a previously unknown early culture pattern for this area. The presence of lanceolate dart points similar to late Paleo-Indian forms suggests a link to the late Paleo-Indian tradition, while the presence of Middle Archaic fluted and barbed darts and other artifacts, particularly the Central Texas type, reflect far-ranging trade connections. Ornaments of shell indicate a concern for personal adornment and, along with pieces of asphaltum show that these early people were already exploiting the resources of the emergent Gulf shoreline. These items, the finely fashioned and labor-intensive quartzite "blinking"

and the large inflex all suggest an emphasis on ideologically important (as opposed to strictly functional) objects. Caches of stone raw material and the placement of tool kits with the deceased suggest a concern for provisioning individuals for an afterlife. It may be possible to correlate the kinds of burial artifacts with the age and sex of individuals, an unprecedented opportunity for exploring social roles/status in such an early population.

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Updated: February 19, 2002

Advisory Council On Historic Preservation

The Old Post Office Building
1000 Pennsylvania Avenue, NW # 400
Washington, DC 20004

Reply to: 700 Simons Street # 400
Galveston, TX 77550

July 25, 1990
Colonel Brisk P. Miller
District Engineer
Galveston District
Corps of Engineers
P.O. Box 1226
Galveston, TX 77553-1226

REF: Programmatic Agreement regarding the Proposed Enlargement of the Channel to Victoria, and Victoria and Calhoun Counties, Texas

Dear Colonel Miller:

The enclosed Programmatic Agreement regarding the proposed enlargement of the Channel to Victoria, and Victoria and Calhoun Counties, Texas, has been accepted by the Council. This action constitutes the comments of the Council required by Section 106 of the National Historic Preservation Act. Enclosed is a copy of the Texas State Historic Preservation Officer and your Federal Preservation Officer.

The Council appreciates your cooperation in reaching a satisfactory resolution of this matter, and we look forward to working with you in the future.

Sincerely,

Claudia Hissley
District Engineer
of Project Review

Enclosure

PROGRAMMATIC AGREEMENT

Among the Corps of Engineers, Galveston District, the Texas State Historic Preservation Officer, and the Council on Historic Preservation Regarding the Proposed Enlargement of the Channel to Victoria, Calhoun and Victoria Counties, Texas

WHEREAS, the Galveston District, Corps of Engineers (COE) has determined that proposed new construction on the Channel to Victoria, Calhoun and Victoria Counties, Texas may have an effect on properties included in or eligible for inclusion in the National Register of Historic Places and has requested the assistance of the National Historic Preservation Council (Council) and the Texas State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act (16 U.S.C. § 470) and its implementing regulations, "Protection of Historic Properties," (36 CFR Part 800) and

WHEREAS, the COE proposes to administer the Channel to Victoria Project authorized by the River and Harbor Act of 1954, and authorized by the COE, the Texas State Historic Preservation Officer, and the Council agree that it is advisable to accomplish compliance with Section 106 and the Council's regulations through the development and execution of this Programmatic Agreement (PA) in accordance with 36 CFR Section 800.13;

NOW, WHEREAS, the COE, the Texas SHPO, and the Council agree that the undertaking shall be implemented and administered in accordance with the following stipulations in order to take into account the effect of the undertakings on historic properties and to satisfy the COE's Section 106 responsibilities for all individual undertakings of the project.

STIPULATIONS

The COE shall ensure that the following measures are carried out:

I. Applicability of this Agreement:

The Agreement shall be applicable to all new construction actions related to or within the Channel to Victoria that are directly undertaken by the COE or the Texas SHPO, and to all new construction actions related to or within the geographic area of the Channel to Victoria if the character or use of these historic properties may be changed by COE-initiated new construction actions. This Agreement shall be applicable to areas to be dredged or filled, to areas to be relocated, and to areas of existing disposal areas, existing facilities to be relocated, and areas affected by wildlife mitigation and the creation of freshwater marsh.

- IV. Review and Compliance
- A. Project Monitoring:
- The Council and the Texas SHPO may monitor activities pursuant to this PA, and the Council will review such activities if so requested. The COE will cooperate with the Council and the SHPO in carrying out their monitoring responsibilities.
- B. COE Compliance:
- If the COE does not carry out the terms of this Agreement, COE will not be eligible for funding. Such non-compliance may result in the exclusion from the National Register within the scope of this Agreement or would foreclose the Council's consideration of avoidance or mitigation measures. The Council may request that the COE's compliance with the overall undertaking, for each individual action carried out as part of the overall undertaking.
- Y. Dispute Resolution:
- If a dispute arises regarding implementation of this Agreement, the COE shall consult with the objecting party to resolve the dispute. If any consulting party determines that the dispute cannot be resolved, the COE shall request the consulting party to forward all documents and information relevant to the dispute to the Council. Within 30 days after receipt of all relevant documentation, the Council shall either:
1. Notify the COE that it concurs in the COE's position regarding the matter;
 2. Notify the COE of changes that would make their position acceptable to the Council and, provide that the COE agrees with the changes, the dispute would be resolved; or
 3. Notify the COE that it will comment in accordance with 36 CFR Section 800.6(D).
- VI. Programmatic Agreement Revision
- The parties to this Agreement may consult at any time to review implementation of the terms of this Agreement and determine whether revisions are needed. If any of the signatories to this Agreement determines that the terms of this Agreement cannot be met or believes that a change to it is necessary, the signatory shall request immediately the consulting parties to this Agreement, by written request, amending, or effecting an addendum or amendment to this Agreement. Such an amendment or addendum shall be executed in the same manner as this Agreement. The COE shall comply with the terms of this Agreement covered by 36 CFR 800.4 through 800.6 with regard to individual undertakings covered by this Agreement.
2. Review of a Data Recovery or Treatment Plan:
- The COE shall provide the Texas SHPO and the Council a 30-day opportunity to review and comment on the draft data recovery or treatment plan. Objections to the draft data recovery or treatment plan shall be dealt with in accordance with stipulation 4 of this Agreement.
- Implementation
- A. Technical Performance:
1. Technical Reports:
- All work conducted pursuant to this Agreement shall be monitored by a COE staff archaeologist. Copies of all final reports resulting from work conducted pursuant to this Agreement shall be provided to the SHPO. The SHPO shall have the right to request the COE to provide a written justification for the National Technical Information Service. All reports shall be responsive to the professional standards and formats identified in the "Standards and Guidelines."
2. Professional Qualifications:
- The COE shall ensure that all archeological, historical, or archival work carried out pursuant to this Agreement is carried out by or under the supervision of a qualified professional. The COE shall ensure that the Secretary of the Interior's Professional Qualifications Standards and/or the Certification Requirements of the Society of Professional Archaeologists.
3. Curation:
- The COE shall ensure that all materials, except those subject to stipulation 11(b), are stored in a secure and accessible facility in accordance with 36 CFR Part 79.
4. Periodic Reports:
- The COE shall prepare a periodic report on implementation of the Channel to Victoria project as actions warrant and provide this report to the SHPO, Council, and other interested parties for review, comment, and consultation as needed.
- B. Discovery:
- If, after completion of the identification efforts required pursuant to stipulation 11(b), the COE discovers a potentially significant project area, the COE shall cease potentially damaging activities to cease until it has consulted with the Texas SHPO and complied with 36 CFR Section 800.11(b)(2)(11).

Execution and implementation of this Programmatic Agreement evidences that the Corps is committed to the preservation of historic properties in the Channel to Victoria, Texas SHIP, and the Council signatories and will remain in effect until terminated by any party to the Agreement by 30 days prior written notice to the other parties.

U.S. Army Corps of Engineers, Galveston District
By: *Frank P. Miller* 10 MAY 1990
Frank P. Miller, Commander (date)

Texas State Historic Preservation Officer
By: *James E. Bruseth* 6/21/90
James E. Bruseth, Ph.D. (date)

Advisory Council on Historic Preservation
By: *Robert E. Bush* 7/6/90
Robert E. Bush, Ph.D. (date)

Attendees:

Tribal Representatives

- Mr. Olin Williams
- Ms. Debbie Thomas
- Ms. Beryl Battise
- Mr. Walter Celestine
- Chairman Johnny Wacajua
- Mr. Jimmy Arterberry
- Ms. Annette Akoketa

Galveston District Staff

- COL Leonard D. Waterworth
- Ms. Carolyn E. Murphy
- Ms. Janelle S. Stokes
- Mr. Enrique Villagomez
- Ms. Phyllis A. Blodsee
- Ms. Marilyn Ulrich

St. Louis District Staff

- Ms. Roberta L. Hayworth

DuPont Representatives

- Dr. Anita Sanchez
- Andrew Chan
- Mr. Hugh Chaffron
- Mr. Bob Misak
- Ms. Amy Hodges

Coastal Environments, Inc.

- Dr. David B. Kelly

Since the site is located on property owned by DuPont, they have the ultimate responsibility for all remains and artifacts removed from the site. DuPont recognizes the inherent religious and cultural significance these remains hold for Native Americans, thus they are meeting with tribal representatives to discuss this matter so that an informed decision can be reached on the care of all items removed from this site. If it is decided to rebury all items removed from the site, DuPont has indicated that the items can be reburied at the site.

The Galveston District is currently faced with many conflicting interests on the extent of analysis that should take place on the remains and other artifacts removed from this site. It must be remembered that (1) this site is located on property that is privately owned, (2) the Native American Graves Protection and Repatriation Act does not apply, and (3) there are no state laws that protect burials. Given the nature of Texas, because of this, the consultation process was allowed to proceed. On February 13, 2002, the Galveston District will meet with all the members of the general public, Native American tribes, and the Texas SHPO representatives on further analysis of the human remains. The decision on the level and extent of analysis and reporting rests with the Galveston District. The extent to which the Galveston District decisions are implemented, and the final disposition of the collection, will be determined in consultation with DuPont, the owner. The Galveston District is fully aware of the scientific significance of this site but at the same time is also fully aware of the concerns of Native Americans as to how the remains are treated and analyzed. Because of the site's significance every attempt will be made to avoid future impacts to the site from Corps construction, operation, and maintenance of the channel.

On February 13, 2002, the DuPont Corporation, Galveston District, and the Texas SHPO met with Tribal representatives to present all information that was available on the site. A future meeting will be held with the Galveston District, DuPont representatives, and Tribal representatives to further discuss the concerns of the Native American tribes. At the same time the Galveston District will have a public meeting and meetings with consulting parties, which represent the scientific community to obtain their comments on this matter. At this time, no decision has been made as to whether any additional analysis will be performed.

12 Feb 2002

Consultation meeting

Location:

DuPont Nylon Victoria Plant
Employee Clubhouse, Victoria, Texas

- Cherokee Nation of Oklahoma
- Tribal Historic Preservation Officer
- Alabama-Coushatta Tribe of Texas
- Historic Preservation Office
- Alabama-Confederate Warperson
- Cultural Committee of Chairperson
- Alabama-Choctaw Tribe of Texas
- Choctaw Committee Vice Chair
- Comanche Tribe
- Tribal Chairman/CEO
- Comanche Tribe
- Environmental Program Director
- Onco-Missouri (attended with the
- Comanche tribal representatives)

- District Commander
- Chief Environmental Section
- Native American Coordinator
- Project Manager
- Chief, Public Affairs
- Public Affairs Specialist

- Native American Coordinator

- Native American Consultant
- Plant Manager
- Senior Environmental Consultant
- Manager-Safety, Health, Environmental/Business Services
- Chief Coast Public Affairs

- Director, Cultural Resources Division

Victoria County Navigation District

- Mr. Howard W. Hawlborne
Executive Director
- State of Texas
 - Mr. F. Lawrence Oaks
Deputy State Historic Preservation Officer
 - Mr. James E. Brusch
Assistant Director, State and Federal Review
 - Mr. William Martin
Texas Historical Commission
 - Mr. Ed Baker
State and Federal Review, Texas
 - Ms. Helen R. Walker
Historical Commission
 - Victoria County Judge

Delay in start of meeting

The start of the meeting was delayed by 45 minutes because of a conversation with a group of non-federally recognized tribal members that wanted to attend the meeting. Mr. Ray Hernandez, Cultural Preservation Officer for the Tam Piliam Coahuiltecan Nation of Comfort, Texas, arrived and wanted to attend the meeting. The Galveston District was aware that the Tam Piliam Nation had a resolution from the Wichita Tribe. St. Louis District personnel had tried several times to contact the Wichita Tribe before this meeting to discuss this issue but phone calls were never returned. Because of the lack of understanding as to what role the Wichita Tribe wanted the Tam Piliam Nation to take at this meeting, the tribe had been informed before the meeting that they would not be allowed to attend.

Mr. Hernandez was once again informed that the Tam Piliam Nation had not been invited to this meeting because of their lack of federal recognition. Mr. Hernandez stated that a meeting could be set up between tribal members and the Commander of the Galveston District at a later date. Galveston District personnel explained that the Tam Piliam Coahuiltecan Nation is not federally recognized and Galveston District must consult with them as part of the general public and they would be welcome to attend all public meetings.

Mr. Hernandez presented a tribal resolution written by the Wichita Tribe stating that the Tam Piliam Nation had the Wichitas support to attend the meeting and to represent their interest. After Galveston personnel looked at the document they determined that this was a resolution written for the Tam Piliam Nation to be representatives for a federal project in another area of Texas. Mr. Hernandez was quite upset that they were not allowed to attend the meeting and asked COL Waterworth to call the tribal chairman of the Wichita Tribe to clear up this problem once and for all. The Colonel stated that this was not the time and place for such a phone call and assured Mr. Hernandez that as soon as he returned to his office later that week he would determine when he could meet with the tribe in his office. Mr. Hernandez agreed and departed.

The Comanche Tribe brought a video camera with the expectations of taping the meeting. The Comanche Tribe explained that they would all record on videotape. Galveston District personnel and DuPont personnel expressed concern and reluctance to allow the taping, saying it might inhibit free discussion but agreed to ask all present. If anyone objected to taping. Several participants did object, and so the Comanche graciously refrained from taping.

Opening

Chairman/CEO Johnny Wauna, Comanche Tribe, began the meeting with a blessing. COL Leonard D. Waterworth, District Commander, welcomed everyone and asked that everyone around the table introduce themselves.

DuPont welcome

Mr. Bruce Chinn, DuPont Plant Manager, welcomed the tribes and explained the role of DuPont. DuPont's role is to listen and understand what the tribes have to say and then make an informed decision as to how the collection will be handled, stored, returned, or reburied. DuPont has been a company for nearly two hundred years, and one of their objectives is the protection of the land they own, as well as respect for all cultures, and viewpoints. DuPont is serious about working with the tribes to reach an applicable solution for items removed from this site.

District Mission

COL Waterworth discussed the District and its mission.

The Galveston District performs its Civil Works mission throughout the Texas Gulf coast, contributing to the area's metropolitan and rural life, a congenial mixture of industry and natural environment, abundant wildlife, and coastal attractions. Galveston District was established in 1880 and was the first Engineer District in Texas. Present-day boundaries cover 47 counties, 50,000 square miles, stretching approximately one hundred miles inland from the Gulf of Mexico. The district encompasses about four hundred miles along the coast from Louisiana to the Texas-Mexico border.

The District headquarters is located in the Jarwin Building on the east end of Galveston Island. Engineers, biologists, hydrologists, economists, computer experts, secretaries, boat operators, surveyors, and archaeologists unite to form Team Galveston and strive to meet and maintain the Corps vision and to expand its "One door to the Corps" policy.

In 1949 the District completed the Gulf Intracoastal Waterway, which opened up commerce from Mexico to Florida and linked Texas with the nation's inland waterway systems. The Galveston District has within its boundaries 1,900 miles of the 12,000 miles of navigable channels supported by the Corps of Engineers. It approximately 760

miles of shallow-draft channels and 240 miles of deep draft channels justifies its title as "Leader in Coastal Navigation."

The Galveston District recognizes the important and valuable natural resources along the Texas coast. The Gulf Intracoastal Waterway crosses six major bays, seven natural wildlife refuges, a national seashore, three coastal preserves, and numerous state parks. The balancing of these sometimes competing objectives is the greatest challenge facing the Galveston District.

The District is home to 28 ports handling 385 million tons of commerce annually. Houston, Orange, Port Arthur, Port Arthur and Beaumont are listed in the top 25 U.S. ports. The Galveston District's biggest navigation project is the Houston and Galveston Ship Channel Project, which will deepen both channels to 45 feet and will widen the Houston Ship Channel to 530 feet. This project should be completed in 2007.

The Galveston District handles about 2,000 regulator actions and nearly 1,000 permits annually. This includes the administration of the federal regulatory program, which covers work on structures in navigable waters and controls discharge of dredged or fill materials into coastal and inland wetlands and wetlands.

The Galveston District stands ready to help when disasters occur. Following the lead of Federal Emergency Management Agency the District and the resources of the Corps are there when needed in such disasters as floods, tornadoes, and hurricanes. The District works with local emergency management agencies in the areas of emergency contracting, preparedness, and mitigation for flood and hurricane disasters.

After the presentation participants visited the site.

Dr. David Kelly, Coastal Environments Inc.

Upon return from the site Dr. David Kelly, Coastal Environments Inc, presented the following information. (Dr. Kelly's complete presentation can be found in the notebooks, below is a summary of his presentation).

Dr. Kelly began his presentation by talking about the site, and where it is located, and the time depth of the site. He then discussed the fieldwork, how it was conducted, and some of the most important information that was recovered from the excavations on the knoll. The deposits in this area occurred in three distinct strata or zones. The uppermost, Zone I, was a grayish brown soil that formed on the site after the Native American occupations. Zone 2, a black silty midden or refuse deposit about 80-cm thick, contained numerous artifacts, including stone dart and arrow points and other tools, debris from manufacturing tools, pottery fragments, animal bones, and shell. A number of hearth features, consisting of concentrations of burned clay and stone were also present. Based on the styles of the projectile points and ceramics recovered, Dr. Kelly estimated that this zone represents intermittent occupation from about 800 to 5000 years ago.

At the base of Zone 2, or in the upper portion of Zone 3, five human burials were encountered. Two of the burials contained dart points and large whale-shell pendants typical of the Late Archaic period (about 2500 years ago). Also present at the base of Zone 3 was an Early Archaic cemetery containing at least 70 human burials in flexed, sitting, or bundle positions. Radiocarbon dates obtained on samples of bone from four of these burials indicate that this occupation dates between 7500 and 6300 years ago. Based on the distribution of burials in the excavated units it is estimated that approximately 25-30 percent of the cemetery area has been recovered.

In summary Dr. Kelly stated that this site contains important information for understanding the prehistory of the Central Texas coast region and for understanding larger issues of Early Archaic life in the south-central United States. Dr. Kelly discussed the following major research topics that could be addressed.

Regional cultural history

This site has produced one of the most complete records of human occupation of any archaeological site on the coastal prairies of Texas, representing some 10,000 to 12,000 years of cultural history. Identifiable periods include the Paleo-Indian, Early Archaic, Middle Archaic, Late Archaic, and Late Prehistoric. The vertical distributions of time-diagnostic dart points and other artifacts, particularly in the Knoll Top and West Slope areas, show that the cultural deposits are intact and contain discrete, identifiable components. All of this offers a unique opportunity for increasing our understanding of long term cultural development and change on the western Gulf and coastal plain.

Environmental history and human ecology

Well-preserved and abundant animal bones from various deposits hold great potential for understanding the subsistence economies of the people who lived there and how those patterns may have changed in response to shifts in climate and environments. Pollination of the many soil samples taken from midden strata may provide information on economically important plant resources. The pollen preservation found in nearby floodplain sediments is expected to provide the models of environmental change with which to interpret changes in human adaptation during the long history of occupation at this site.

Early Archaic bioarchaeology

The Early Archaic cemetery discovered at this site contains one of the three largest samples of early human remains of this age from North America and represents some 8-10 percent of all known individuals of this age or older from the continent. These burials include a unique period for understanding early people and their health, diet, and biological affinity. The site could also be found in a notebook by Dr. Kelly from Florida State University discussed in some detail the various types of analyses that could be conducted on the human remains and the information provided by each. Approximately 20-30 percent of the estimated cemetery

area was excavated, and many more remains are undoubtedly present and should be preserved and protected in place.

The quantity and variety of artifacts associated with the Early Archaic burials reflect an impressive level of aesthetic and technical development in material culture on the western Gulf coastal plain by 7000 years ago. These materials appear to represent a previously unknown early culture pattern for this area. The presence of lanceolate dart points similar to late Paleo-Indian forms suggests a continuity in material cultural traditions and technology, while the ground-stone plummets and banner stones and sherts imported from central Texas reflect far-ranging trade connections. Ornaments of shell indicate a concern for personal adornment and show that these early people were already exploiting the resources of the onshore Gulf shoreline. These items, the finely fashioned and labor-intensive quartzite "sinkers" and the large bifaces, all suggest an emphasis on ideologically important (as opposed to strictly functional) objects. Caches of stone raw material and the placement of food kits with the deceased suggest a concern for provisioning individuals for an afterlife. It may be possible to correlate the kinds of burial artifacts with the age and sex of individuals, an unprecedented opportunity for exploring social roles/status in such an early population.

Tribal Comments

Tribal representatives wanted to know where the remains were and if any further analysis was taking place.

The tribes were informed that all human remains and associated funerary objects were securely locked and all analysis and inventory of these items has been halted. Tribal representatives will be informed as to what kind of an inventory and analysis will take place before it happens. No decision had been made by the Galveston District as to what will or will not be done when it comes to analysis of the remains and funerary objects.

LUNCH

Ms. Carolyn Murphy, Chief of the Environmental Branch, Galveston District, discussed the upcoming briefing for local officials. A briefing had been scheduled for the following day, and Ms. Murphy explained that herself and Mr. Villagomez, project manager, would be the only speakers at this briefing. The purpose of the briefing was to inform local officials about the current meeting to prevent further misinformation from being sent to local officials. Ms. Murphy also discussed the scheduled public meeting for February 26 at Victoria College. Ms. Murphy explained that this meeting will be open to everyone and a panel will answer questions, submitted in writing. No formal transcript will be recorded, but a summary of all questions and answers will be written. (Note: It was later decided to have the meeting formally recorded. A copy of the meeting transcript is provided.)

Tribal Comments

Several of the tribal representatives asked if they could have a summary of the briefing and the public meeting.

The Galveston District will provide the tribes with this information.

Section 106 compliance

Ms. Murphy summarized the Galveston District's Section 106 compliance activities at this site. The construction of the Victoria Barge Canal was completed in the 1950s and early 1960s prior to passage of the National Historic Preservation Act. Several sites were impacted during the construction of the channel, including this site. In the early 1980s the Galveston District began surveying and site testing the entire project area in order to identify historic properties and minimize impacts to the significant sites during the maintenance of the channel. When widening and deepening of the channel was proposed the Galveston District conducted more surveys and site testing to determine what would be impacted and investigate proposed locations for the dredged materials. In 1990, the Galveston District entered into a Programmatic Agreement with the Texas SHPO and the Advisory Council on Historic Preservation to cover the new construction and maintenance of the existing channel.

Costal Environments, under contract to the Galveston District, conducted additional testing of this site from November 2009 to July 2001. Site testing was being conducted to determine the extent of the site and if deepening and widening of the channel would affect intact cultural deposits. The testing documented that this was a significant, multi-component prehistoric site dating from the Paleo-Indian through Late Prehistoric periods, approximately 12,000 through 1,000 years ago.

The portion of the site that would have been impacted by construction had already been disturbed and contained no intact deposits. Once it was determined that the areas of the site containing significant archaeological deposits and human remains would not be affected by the widening of the channel all excavation was suspended. The Galveston District met with the Texas SHPO to determine the future course of action. An agreement was reached that no new excavation units would be opened and all open units would be fully excavated, the remains removed to an off-site laboratory, and the site carefully backfilled.

During a meeting with the Texas SHPO, Galveston District personnel and DuPont personnel requested that tribal consultation be initiated. The Galveston District had not done this earlier in the process because they did not anticipate discovery of a prehistoric cemetery and because it had been determined that NAGPPA did not apply to this investigation. Furthermore, the District believed that the project was based on the findings of the State Historic Preservation Office. This belief was based on the results of letters to the tribes in the early 1990s in which the District sent letters and made follow-up calls to tribes concerning its NAGPPA collections. Since no tribes

Galveston District still decides not to follow the recommendations of the Advisory Council, then the Chief of Engineers will be required to write a letter to the Advisory Council stating that it was proceeding in the face of opposition from the Texas SHPO and the Advisory Council.

Mr. James Bruseeth, Deputy Texas State Historic Preservation Officer

Mr. Bruseeth gave a summary of his office's involvement in this site. Mr. Bruseeth discussed the Programmatic Agreement that the Galveston District had signed and how this document established the process by which this site was addressed. This site was determined eligible for the National Register in 1987. The Galveston District later conducted a study of the site with the Historic Preservation Office that was used to conduct a study of the site in November 2000. Mr. Bruseeth described this site as being a prehistoric site with archaeological significance as it contains a nearly complete sequence of human occupation in one archeological deposit. Mr. Bruseeth said that the human remains should be reinterred as soon as possible, but since they have already been excavated the remains and artifacts should be analyzed so different theories could be tested. He went on to say that these remains and artifacts contain information that could be used to address fundamental questions about the early peopling of North America. Mr. Bruseeth stated that the Texas SHPO believes it is unfortunate that they were ever excavated, and it would have been better if the remains had been left undisturbed.

The Galveston District responded by stating once again that it was their responsibility to make the final decision on how to proceed with the analysis and disposition. The Galveston District is soliciting comments from all consulting parties and all interested parties before they will make a decision as to what will or will not take place. The Galveston District has reached a decision then they will forward it to the Texas SHPO (Mr. Oaks) for review plus concurrence. If the Texas SHPO concurs then it will be elevated to the Advisory Council for comment. The Advisory Council's comments do not dictate the outcome of what happens to the items that were removed from this site.

Tribal comments

The Comanche tribal representative asked about the Programmatic Agreement and its reference to the Advisory Council on Historic Preservation's Policy Interpretation No. 89-1 "Treatment of Human Remains and Grave Goods." The Comanche representative wanted everyone to understand that this guidance did not limit consultation to "known descendants." This policy was not included in the notebook, so copies were made for everyone and handed out. The Galveston District and the Comanche tribal representative suggested that the meeting continue the following morning to talk about this guidance, in order to give everyone sufficient time to study the document.

The Texas SHPO disagreed, saying that they were not prepared to stay a second day and that the Galveston District could not meet with the tribes without a representative from his office present. The tribes all disagreed, and the Alabama-Coushatta stated that the tribes have a nation-to-nation relationship with federal agencies, and tribes could talk to

expressed an interest in the District's collections or geographic region at that time, the District assumed that the tribes remained uninterested. The District has corrected this assumption and all tribes will be consulted on NAGPRA and Section 106 issues from this point forward.

Tribal comments

Several of the tribal representatives explained that many tribes had gotten off to a slow start setting up departments to deal with these issues. Many tribes had no staff to deal with the onslaught of requests for consultation, and most had to develop policies and procedures for consultation, repatriation, and reburial. The tribes expressed an interest in having a memorandum of understanding concerning NAGPRA and Section 106 issues. The tribes indicated that they would share existing MOU's with the Galveston District.

Several tribal representatives talked about how their oral history recounts that their tribe "came up" from the south or from the west, and went east into the states from which the States before moving back west into Texas. This may be why they have moved through the Texas coastal plain to their original migration to the southeast. Several of the tribes stated they were interested in the theme of the interments were in a seated position facing east, a common theme of the Alabama-Coushatta tribe. The Alabama-Coushatta tribe would like any information that the Galveston District has on the orientation of specific burials.

The Galveston District will put this information together and send it to the tribes.

The Comanche representative asked if federal funds were used in the excavation of this site, and the answer was yes. All tribal representatives then expressed the opinion that NAGPRA had to apply. It was explained that NAGPRA did not apply because the site is located on private property and the easement the Galveston District has does not convey sufficient rights for the human remains and artifacts to be considered under federal ownership and control. In addition, Texas has no state law to protect unmarked graves on private property, so it appears that Section 106 of NHPA is the only applicable statute.

Mr. Lawrence Oaks, Texas State Historic Preservation Officer

Mr. Oaks gave an overview of the Texas Historical Commission's cultural resource programs and explained the agency's involvement in the Section 106 process. The Texas Historical Commission was created in 1983 and its mission is to (1) identify historic properties, (2) secure historic properties, and (3) determine how to preserve historic properties. Mr. Oaks stated that his involvement is that of an advisor in the overall process and that ultimately the federal agency is the decision maker, but only at the end of the process. Mr. Oaks went on to say that if the Galveston District's final decision conflicts with the recommendations of his office, then the disagreement would be referred to the Advisory Council of Historic Preservation in Washington, D.C. The Advisory Council would then prepare comments on the recommendations. If the

Galveston District any time they wished, without any representation from Mr. Oak's office. DuPont representatives requested a break in order to talk over Policy Interpretation No. 89-1. Everyone agreed to this.

Options for analysis

Ms. Stokes reviewed the possible options for analysis of the collection from the site. All of this information can be found at the last tab of the notebook. Ms. Stokes asked the tribes if they would support analysis of materials from the non-monetary strata.

Tribal comments

The tribal representatives present concurred that all materials from this site should be considered monetary, regardless of their distance in time or space from burials. This would mean that if the human remains and grave goods are reinterred, everything in the collections would also be reinterred. The tribes explained that the site in its entirety should be considered a mortuary site. This site could have been considered a sacred site and revisited often with objects being left nearby the burials to help the deceased on their journey to the afterlife. This is a custom that is still used today by many tribes.

Tribal representatives did not support any analysis of the human remains. The tribal representatives present stated that the oral inventory would be sufficient and did not support a more detailed inventory. Ms. Stokes stated that the tribes of the letter from Caddo Tribes, which supported analysis of the collection.

The Choctaw tribe stated that this site appears to be a special case, an unusual discovery that could shed light on tribal history. The Choctaw oral history described them coming from the west, and this site might answer that type of question. The Choctaw representative stated that this was an issue that needed to be considered very carefully and discussed with other members of his tribe. There are certain questions that might be answered by the analysis of this collection, and the Choctaw will consider sending the Galveston District a list of questions that could perhaps be answered. The Galveston District stated that that was a good idea and will encourage all the tribes to think about what kinds of information they would like to see addressed if analysis takes place.

The Alabama-Coushatta stated that they would be interested in drawings of the artifacts but did not support a report that would show the remains or actual burial objects.

Disposition

The DuPont Corporation has indicated that it would be willing to allow reinterment of site materials on its property near, or within, the site of origin.

Tribal comments

Tribal representatives asked DuPont about the security of the site. DuPont responded that the site had been securely fenced and is guarded by regular perimeter patrols of the entire plant property. Tribal representatives asked that if the remains were reinterred at the site would they be able to visit. DuPont said that would be one of the items that would need to be worked out, but they did not see why they would not be allowed to visit.

The tribal representatives wished to go on record that they fully support this offer. The Choctaw representative reminded everyone that there were other tribes that need to be heard from before it is decided if the remains will be returned to the site of origin. Everyone agreed that all tribes would have a say in this matter. The Choctaw representative suggested that it would be appropriate to hold a ceremony in the laboratory raising the human remains. Spiritual leaders from interested tribes could be invited to perform a ceremony to ask for forgiveness for disturbing the graves and begin the healing process. The Galveston District said that would not be a problem and stated that Ms. Hayworth will be the point of contact on making the arrangements. A letter will be sent to all tribes to determine who would like to be involved and then that arrangements will be made.

Additional consulting parties

Ms. Stokes explained to the representatives that additional consulting parties had been designated because of their demonstrated interest in the scientific significance of the site. These consulting parties are the Society for American Archeology and the Texas Archeological Society. It was explained that numerous requests for consulting party status had been received, and the two listed above were chosen for their ability to represent a majority of those requesting such status. These other consulting parties will be consulted under the 36 CFR 800.2(c)(5), and their comments will be added to all comments received. (Note: a third organization, the Council of Texas Archeologists, was later added as a consulting party.)

Tribal comments

The Choctaw emphasized that the Galveston District, DuPont Corporation, and all interested tribes need to work together to reach a decision.

COL Waterworth realized that no decisions have been made and that no decision would be made until he is satisfied that he and his staff have sufficient information from all competing interests to make an informed decision.

COL Waterworth thanked everyone for attending and asked Chairman Johnny Wauqupa, Comanche Tribes, to end the meeting with a blessing.

Meeting concluded.

13 Feb 2002

Ms. Stokes and Ms. Hayworth drove to the laboratory in Corpus Christi to meet the Comanche Tribe. The Comanche arrived at approximately 11:00 and spent about one hour looking at the collection.

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The Buckeye Knoll Site, 41V198

The Buckeye Knoll site lies on a spur of high ground overlooking the lower Guadalupe River floodplain. [Slide 1-site photo] This promontory is an erosional remnant of the Pleistocene Bearfoot Formation, which was deposited about 130,000 years ago during higher-than-normal sea level. [Slide 2-region map] During the late Pleistocene sea level fell due to the expansion of continental glaciation and coastal-plain streams such as the Guadalupe River downcut their valleys. The Buckeye Knoll site is located on the eroded Guadalupe valley wall that resulted from such downcutting. By ca. 9,000-10,000 BP, rising early Holocene sea level caused inundation of the valley's coastline, resulting in the formation of estuarine embayments such as San Antonio Bay. Since that time the Guadalupe River has deposited sediments that have gradually filled the valley and built a delta into the upper bay.

As indicated by the distribution of archaeological sites on this map of the region, valley-margin settings such as that occupied by Buckeye Knoll were popular locations for Native American camp sites. Not all of these sites were occupied at the same time, but many of them would have overlapped in time with some portion of the long occupational sequence at Buckeye Knoll.

The Buckeye Knoll site was first noted by an avocational archaeologist who worked for Dupont when the Victoria Barge Canal was initially excavated in the late 1950s and early 1960s. The canal cut through a portion of the site, reposing artifacts and human bone in the spoil along either bank. Despite these findings professional archaeologists did not become aware of the site until 1982 when it was recorded by Carolyn Murphy during a

reconnaissance survey of the barge canal for the Corps of Engineers. The survey was intended to identify sites that might be impacted by maintenance dredging or erosion along the canal. As a result of that initial survey Coastal Environments, Inc. was contracted by the Corps to conduct additional survey along the canal and to carry out test excavations at seven sites, one of which was Buckeye Knoll. In 1989 CEI excavated 67 auger borings, five backhoe trenches and three 1X1 m hand-excavated units at the site in an effort to identify its limits and to sample the cultural deposits located there. The results of that work indicated that intact cultural deposits were present on the knoll west of the canal. Time sensitive artifacts were few in number, but those recovered suggested that the deposits spanned the period from about 5000 years ago to only a few centuries ago.

About two years ago the Corps of Engineers began developing plans to widen the barge canal. In November of 2000 Coastal Environments was contracted to conduct more extensive test excavations at the Buckeye Knoll site in order to obtain additional information on the age, contents and distribution of the cultural deposits. The first phase of the fieldwork involved the excavation of numerous backhoe trenches around the periphery of the site in order to better define the limits of the intact cultural deposits and to recover geological information on the formation of the site. [Slide 3-backhoe trenching] This work generally confirmed our previous estimate of the extent of the cultural deposits on the knoll, but it provided two important pieces of additional information. [Slide 4-site map -backhoe trenches] First, it suggested that intact midden deposits may be deeply buried under dredged material southwest of the knoll. Second, it indicated that intact deposits were not present between the levee and the barge canal. Following the completion of these backhoe trenches a

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points and other tools of skyline dating to the Paleo-Indian period, about 10,000 to 11,000 years ago. The lower portion produced very few artifacts and rested directly on the Pleistocene terrace.

Also present within Zone 3 was an Early Archaic cemetery containing at least 70 human burials in flexed, sitting or bundle positions. [Slide 8-plan of burials in Zone 3] Grave pits were not identifiable for any of these burials, but most of them probably originated from a surface that was eroded away before the Zone 2 midden began to accumulate. A diverse array of artifacts were placed with these burials. [Slide 9-plan of mortuary artifacts in Zone 3]. They include resaculate dart points, large bifacial blades that are almost certainly ceremonial rather than functional, winged barbs (weights for throwing sticks which occur in eastern North America, but are not known from the Texas coast), "Waco stalks" (ground-stone objects of unknown use), plummet, flintknapper's tool kits (containing dart points, perforator, flakes, bone and antler tools, sandstone abraders), perforated cord neck, pendants made from freshwater mussel and sandy yellow clam shells, beads made from Mangrove and native shells, red and yellow ocher, and asphaltum (natural tar) nodules.

Radiocarbon dates obtained on samples of bone from five of these burials indicate that this occupation dates to between 7500 and 6500 years ago, during the Early Archaic period. Stylistic information from the artifacts suggest that some of the burials may be even older. [Slide 10-extent of cemetery?] Based on the distribution of burials in the excavation units it is estimated that only about 25-30 percent of the cemetery area has been uncovered.

3

series of hand-excavated 2 x 2 m units were opened across the site. [Slide 5-site map w/keys] These were eventually expanded into block excavations in two areas, so that in total 145 sq meters were excavated by hand.

Some of the most important information was recovered from the excavations on the knoll-top. [Slide 6-profile of knoll-top] The deposits in this area occurred in three distinct strata or zones. The uppermost, Zone 1, was a grayish brown soil that formed on the site after the Native American occupations. Beneath it lay Zone 2, a black silty midden or refuse deposit about 80 cm thick that contained numerous artifacts, including stone dart and arrow points and other tools, the debris from their manufacture, pottery fragments, animal bones and shell. [Slide 7-artifacts from Zone 2] A number of hearth features, consisting of concentrations of baked clay and stone, were also present. Based on the styles of the projectile points and ceramics, it is estimated that this zone represents intermittent occupation from about 5000 to 800 years ago.

At the base of Zone 2 or in the upper portion of Zone 3 five human burials were encountered. All of these were in extended position and occurred at the base of Zone 2 or in distinct pits that originated in Zone 2. Two of the burials contained dart points and large whalek shell pendants typical of the Late Archaic period, about 2500 years ago. The other three burials may be contemporary, but this has yet to be determined.

Beneath Zone 2 was Zone 3, a brown silty sand that was divided into upper and lower portions on the basis of slight color differences. The upper portion, Zone 3A, contained flint

The bottom zone was a black silty sand about 25 cm thick that rested directly on the Pleistocene terrace deposits. This lower stratum produced a small number of stone tools that appear to be associated with a Paleo-Indian occupation. [Slide 15-Paleo-Indian artifacts]

These include two fragments of lanceolate dart points with careful parallel pressure flaking and a distinctive woodworking tool known as a Dalton adz.

This slide gives you a schematic of what we think was the sequence of development of the principal deposits at the site. [Slide 16-schematic of site deposition] It begins about 10,000-12,000 years ago with the accumulation of the sandy Zone 3 deposits containing debris from Paleo-Indian period camps established on the Pleistocene terrace remnant.

About 7000 years ago Early Archaic period groups buried their dead in graves dug into the earlier deposits. Between 5000 and 6000 years ago the site was apparently subjected to extensive sheet erosion, removing the ground surface from which the Early Archaic burials were dug as well as the upper portion of Zone 3. Zone 2 with its Middle Archaic through Late Prehistoric camp debris began to accumulate after 5000 years ago and continued up until about 600 years ago. The Zone 1 deposit on the knoll-top formed after Native American occupation of the site had ended.

In addition to the archaeological remains that were the focus of our research, we collected sediment samples from cores and from the backhoe trenches excavated around the periphery of the site in order to obtain datable material that will allow us to interpret the geologic history of the site. These samples have also produced well-preserved pollen for reconstructing the vegetation history of the site environs.

The other area in which a block excavation was opened was on the west slope of the knoll. [Slide 11(6)-site map w/exc. units] The deposits there were similar to those on the knoll-top with a few exceptions. [Slide 12-west slope profile] Zone 1 was thicker in the west-slope area and contained moderate numbers of artifacts dating to the Late Archaic and Late Prehistoric periods. Zone 2 was somewhat thinner than its counterpart on the knoll-top and in this area it produced occasional shells of marsh clams and oysters. A single extended burial found near the base of this zone is probably contemporary with the Late Archaic burials on the knoll-top. The deposits of Zone 3 were similar to those on the knoll-top, but the dart points recovered from this area appear to be somewhat later, dating to the Middle Archaic period. Beneath Zone 3 in this area was a yellowish brown sand, Zone 4, that rested on the eroded Pleistocene terrace deposits and produced little cultural material.

Intact cultural deposits were encountered in one other portion of the site, a small area of midden located about 70 m east of the knoll-top block excavation. [Slide 13(6)-site map w/exc. units] The deposits in this area consisted of three zones. The uppermost was a dark brown silty sand 20-30 cm thick that contained artifacts of the Rockport Phase, including Rockport pottery and Perdiz arrow points in association with bison and deer bone. [Slide 14-Rockport phase artifacts] This component probably represents a seasonal hunting camp of a coastal Kanakawan group. The second zone was some 80-90 cm thick and contained Archaic artifacts estimated to date between 6000 and 1000 years ago.

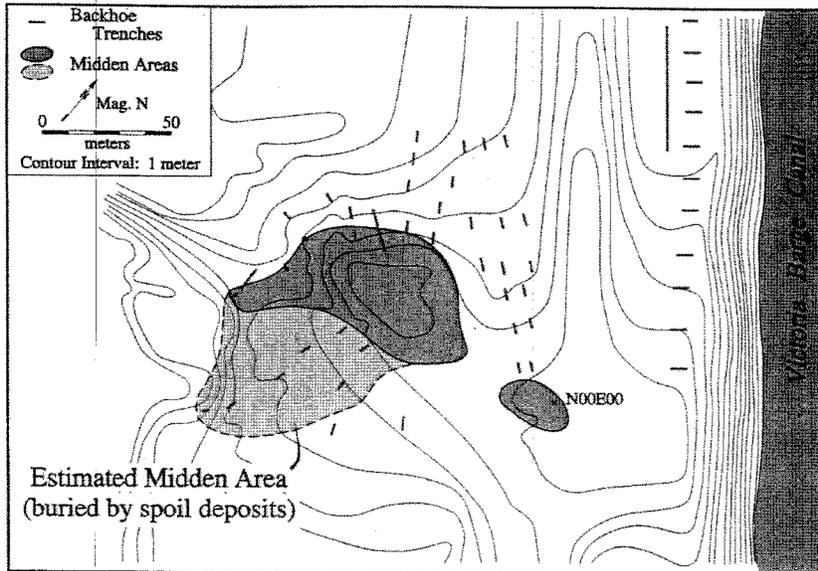
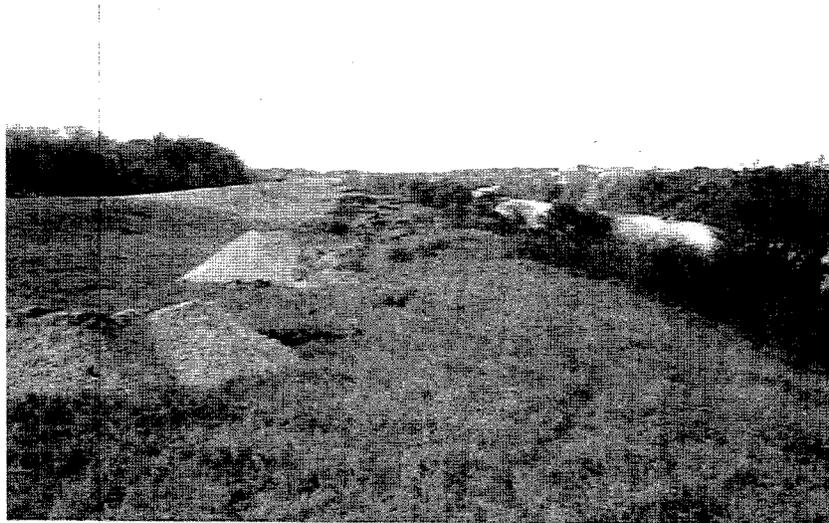
In summary, the Buckeye Knoll site contains important information for interpreting the prehistory of the Central Texas coast region and for understanding larger issues of Early Archaic life in the south-central U.S. [Slide 17-key research topics] The major research topics include:

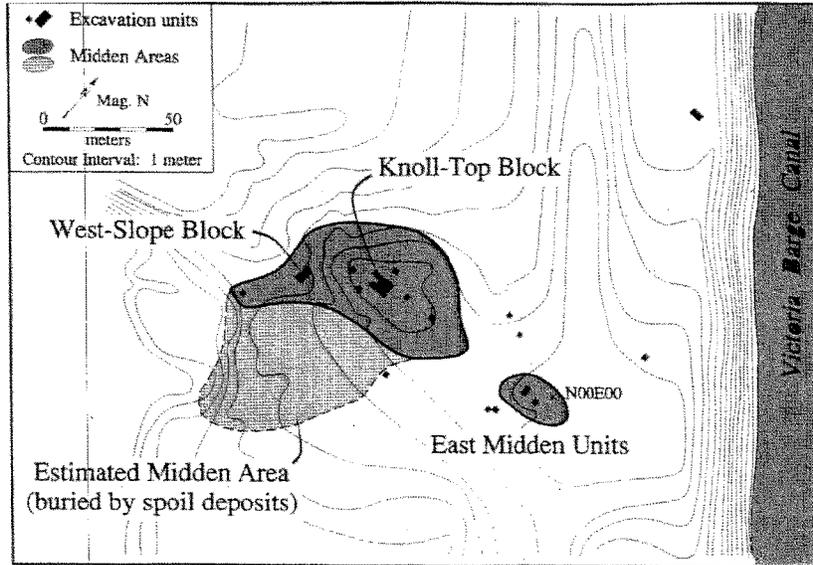
1. **Regional culture history.** The site has produced one of the most complete records of human occupation of any archaeological site on the coastal prairie of Texas, representing some 10,000 to 12,000 years of culture history. Identifiable periods include the Paleo-Indian, Early Archaic, Middle Archaic, Late Archaic and Late Prehistoric. The vertical distributions of time-diagnostic dart points and other artifacts, particular in the Knoll Top and West Slope areas, show that the cultural deposits are intact and contain discrete, identifiable components. All of this offers a unique opportunity for increasing our understanding of long-term cultural development and change on the western Gulf coastal plain.
2. **Environmental history and human ecology.** Well-preserved and abundant animal bones from various deposits hold great potential for understanding the subsistence economies of the people who lived at Buckeye Knoll and how these patterns may have changed in response to shifts in climate and environmental factors. Flotation of the many soil samples taken from midden strata may provide information on economically important plant resources. Moreover, the good pollen preservation found in nearby floodplain sediments is expected to provide a model of environmental change with which to interpret changes in human adaptation during the long history of occupation at the site.

3. **Early Archaic bioarchaeology.** The Early Archaic cemetery at Buckeye Knoll contains one of the three largest samples of early human remains from North America, and represents some 10 percent of all known individuals of this age or older from the continent. As such, these materials hold unique potential for understanding early populations in terms of their health, diet and biological affinity. The report by Dr. Doran and his associates from Florida State University which is part of the packet of information that all of you received discusses in some detail the various types of analyses that could be conducted on the human remains and the information provided by each. Only 25-30 percent of the estimated cemetery area was excavated, and many more remains are undoubtedly present and should be preserved and protected in place.

The quantity and variety of artifacts associated with the Early Archaic burials are striking and reflect an impressive level of aesthetic and technical development in material culture on the western Gulf coastal plain by 7000 years ago. Moreover, these materials appear to represent a previously unknown early culture pattern for this area. The presence of lanceolate dart points similar to late Paleo-Indian forms suggests a continuity in material-culture traditions and technology, while the ground-stone plummets and bannerstones and cherts imported from the Edwards Plateau of central Texas reflect far-ranging trade connections. Ornaments of shell indicate a concern for personal adornment and, along with pieces of asphaltum show that these early people were already exploiting the resources of the emergent Gulf shoreline. These items, the finely fashioned and labor-intensive quartzite "sinkers" and the large bifaces all suggest an emphasis on ideologically important (as opposed to strictly functional) objects. Caches of stone raw material and the placement of

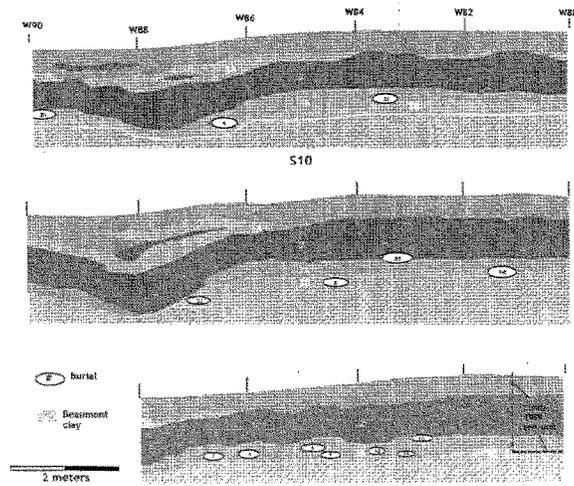
food kits with the deceased suggest a concern for provisioning individuals for an afterlife. It may be possible to correlate the kinds of burial artifacts with the age and sex of individuals, an unprecedented opportunity for exploring social roles/status in such an early population.

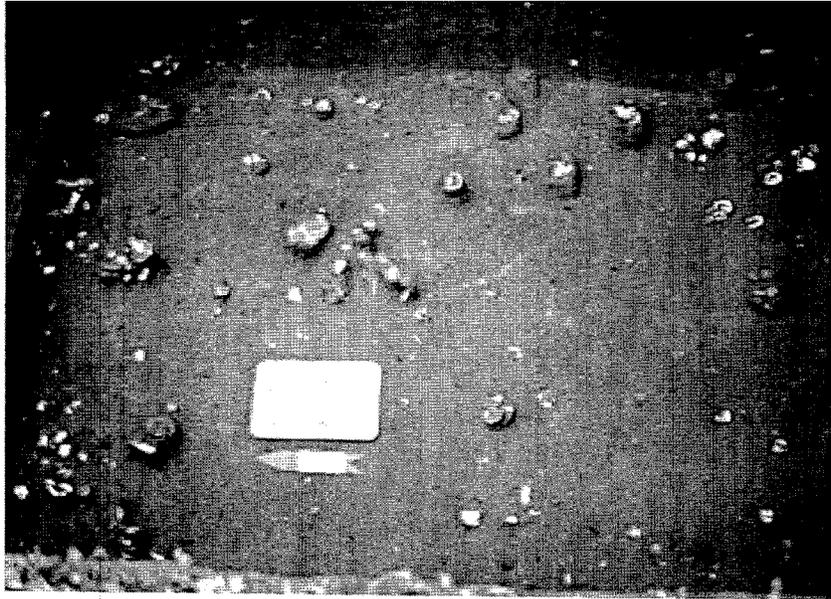




KNOLL TOP EXCAVATION PROFILES

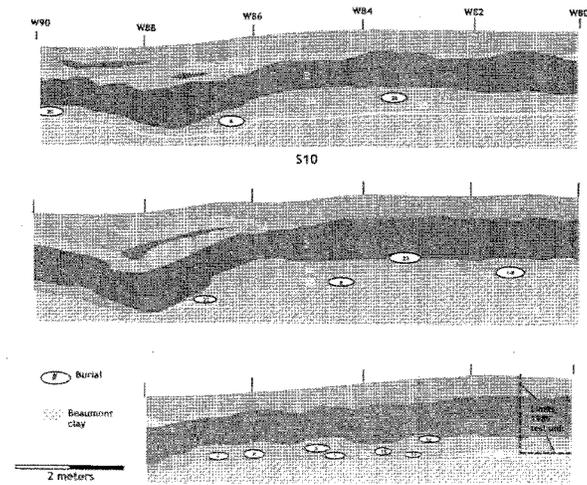
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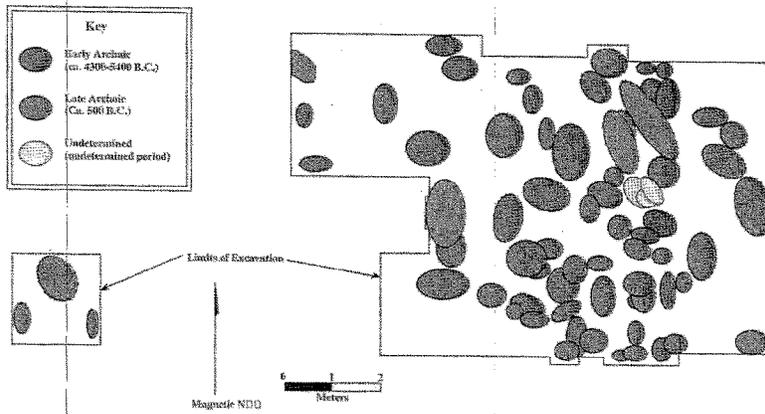


KNOLL TOP EXCAVATION PROFILES

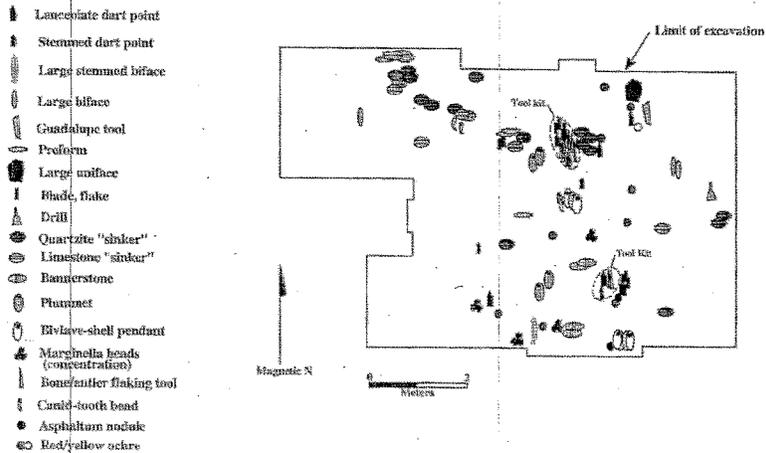
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BURIAL LOCATIONS IN THE KNOLL TOP EXCAVATION AREA

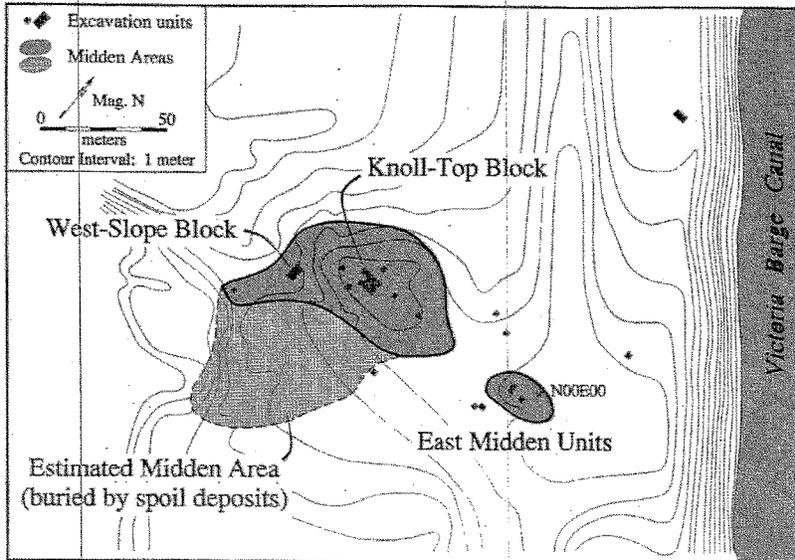
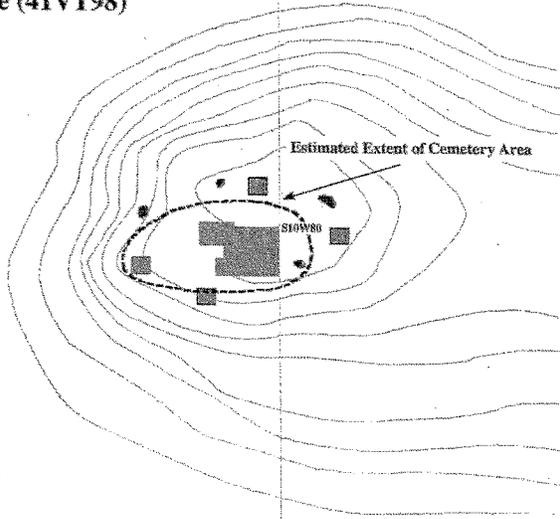
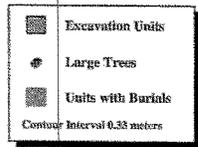
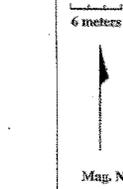


DISTRIBUTION OF EARLY ARCHAIC MORTUARY ARTIFACTS



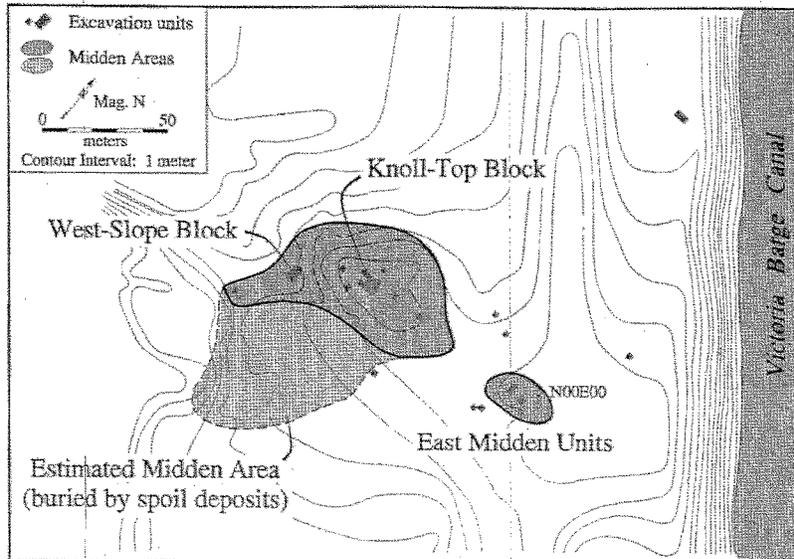
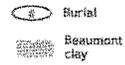
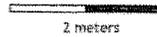
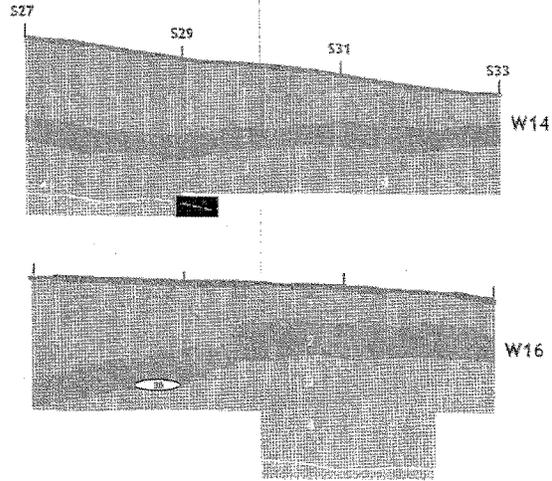
Buckeye Knoll Site (41VT98)

Knoll-Top Area

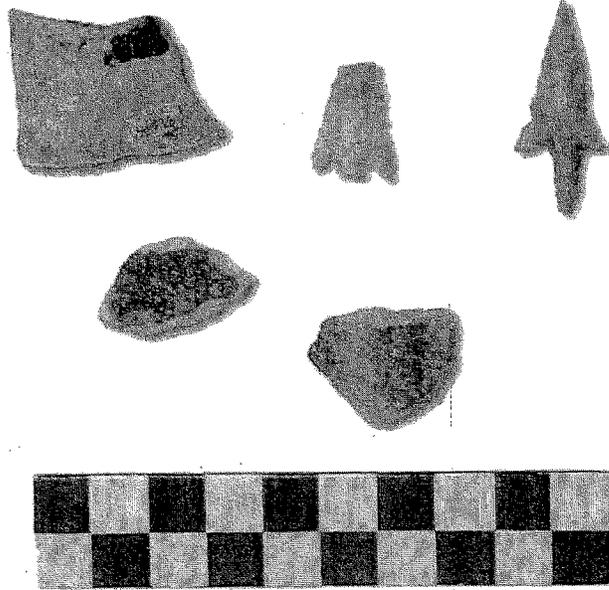


**WEST SLOPE
EXCAVATION
PROFILES**

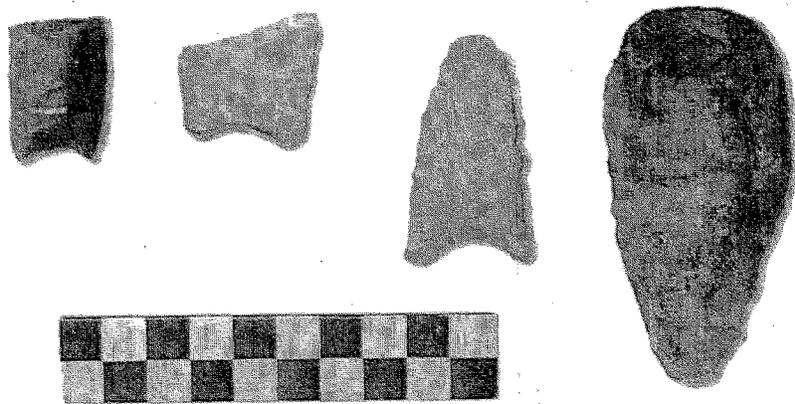
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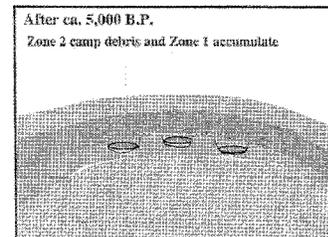
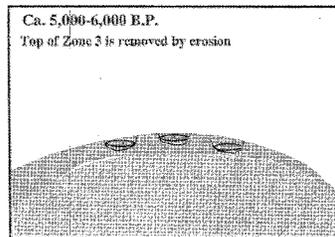
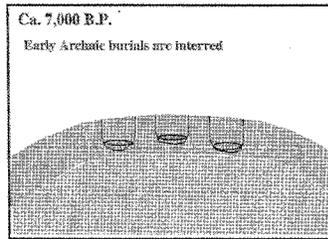
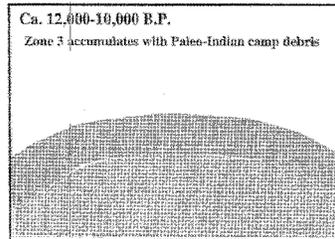
ROCKPORT PHASE ARTIFACTS



PALEO-INDIAN ARTIFACTS

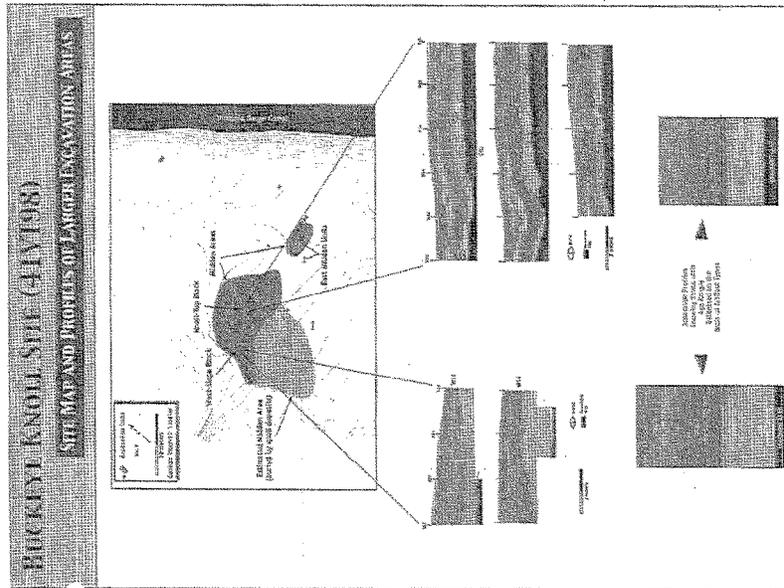
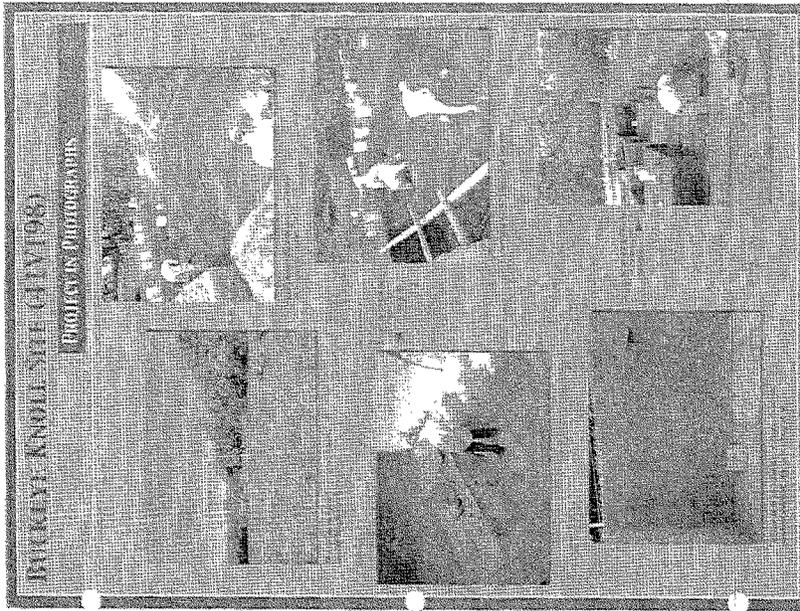


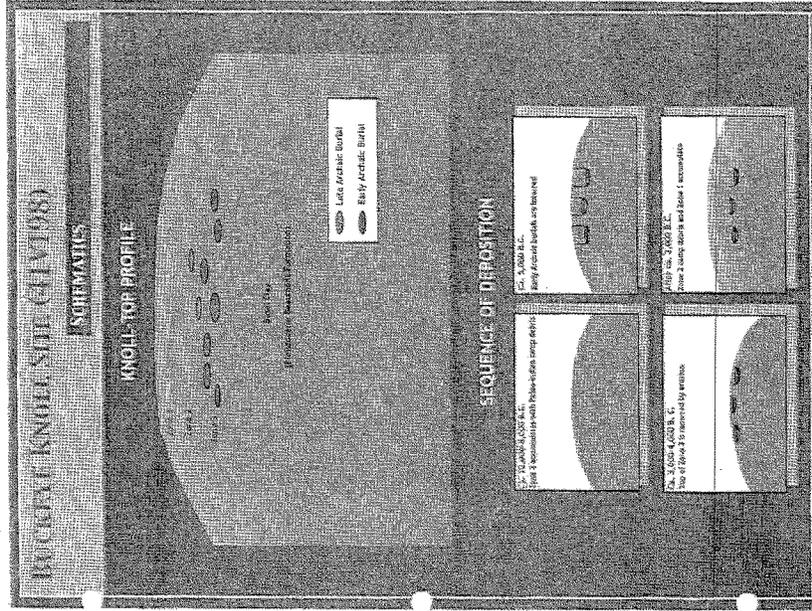
SEQUENCE OF DEPOSITION



MAJOR RESEARCH TOPICS AT BUCKEYE KNOLL

- REGIONAL CULTURE HISTORY
- ENVIRONMENTAL HISTORY
AND HUMAN ECOLOGY
- EARLY ARCHAIC
BIOARCHAEOLOGY





HEARING

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HEARING IN THE MATTER OF:

U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT PUBLIC WORKSHOP
ARCHAEOLOGICAL SITE 41VT98
VICTORIA COLLEGE STUDENT CENTER
VICTORIA, TEXAS

DATE: FEBRUARY 26, 2002
7:02 P.M.

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APPEARANCES:

OFFICATING:

Colonel Leonard Waterworth,
Commanding General, District
Corps of Engineers, Galveston District
Galveston District

Mr. Rick Villegomez, Project Manager, Galveston
District

Mr. David Kelley, Program Director, Coastal
Environments, Inc.

Mr. Joseph Stokes, District Archaeologist,
Galveston District

Dr. Robert Ricklis, Principal Investigator, Coastal
Environments, Inc.

Dr. Jan Burack, Deputy State Historic Preservation
officer, Texas Historical Commission

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COLONEL WATERWORTH: Good evening,
and thank you for coming to the meeting. I am Colonel Leonard D.
Waterworth, and I'm the commander of the Galveston
Engineer District, U.S. Army Corps of Engineers.
For the record, I'm here with you tonight for a
meeting for the record, not for the 27th,
2002, at Victoria College Student Center in
Victoria, Texas.

UNIDENTIFIED SPEAKER: Today is the
26th.

COLONEL WATERWORTH: Thank you. 26th.
I'm here to listen to the public and make sure I
keep everything up to date.

UNIDENTIFIED SPEAKER: I just thought
I would pass it on.

COLONEL WATERWORTH: Well, thank you
very much. We're extremely pleased that all of
you are able to join us tonight, and I want everyone
to understand that this is primarily an information
meeting. No decision will be made tonight. This is
my opportunity to hear from you on the state of the
remains on 4198.

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We're here to provide you information
on -- information on Galveston District work at
the site of 4198 and provide you with an update
on the work that we're doing. I want to thank
you. But most importantly we're here to listen to
everyone that would like to make a comment tonight.
This is an opportunity for you to
address -- address your concerns and questions
directly to the Corps of Engineers and directly to
me.

I would like to
recognize the staff that are here with us for
the evening. We have Dr. Robert Ricklis, President of Victoria
College. Sir, and as I understand, Mr. Don
Posey -- is that pronounced right -- running for
Judge, Walker's position. Sir, are you here?

COLONEL WATERWORTH: Did I pronounce
that correctly?

MR. POSEY: You said, sir,
Colonel Waterworth. Okay. Thank you
very much. I'm here to make a
comment. Additionally at the table I would like
to introduce those who are with me from the Corps of
Engineers. Mr. Rick Villegomez, Project Manager for

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the Channel in Victoria Project. Mr. Charles
Mason, Chief of Environmental Sciences in my right,
Mr. Jim Stokes, District Archaeologist, and from
Coastal Environments, Incorporated, Dr. David
Kelley, Program Director, and Dr. Robert Ricklis,
Principal Investigator.

Now, the format for tonight's meeting.
I have taken -- I'm going to change the format a
little bit because of the turnout that we have. I
want to provide everybody an opportunity to make
comments. We have a microphone placed in the
center of the room. We have a microphone placed in the
back and anybody that would like to make a comment,
to make your comment and we'll be calling you forward
to make your comment.

I would also like the opportunity to
answer some of the questions that you've posed on
forward -- on the answer -- question cards that you sent
forward. We would like to take your comments.
Then if that cuts off, we would like to answer as
many questions as possible.

If we can't get to all the questions,
we will. If we can't get to all the questions,
we will. We will. We will. We will. We will. We will.
We'll start as that everybody will have the opportunity

HEARING

Page 2 (Page 2 of 5)

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HEARING

<p>Page 10</p> <p>1 slide. All right. Well try it this way. All right. There are three main areas that we investigated in addition to the banks along the canal where, as I say, this is very critical because very important to know if there would be significant material here that would be affected by that dredging. This was determined not to be the case. Then we have the Knoll Top and here, we see the Middleburg units over the Middleburg. The Middleburg River's floodplain is the low ground to the west. Well, cross that one and we have the Knoll Top. We're not talking about the Knoll Top looking from the opposite direction.</p> <p>17 Now, we come to the cemetery, which this is, and we see that this is what we call this is a well in a mudflat, this is what makes this is the Knoll Top, and here is a one-foot contour map, and you can see we have a cemetery at the cemetery and there are our excavation units.</p>	<p>Page 11</p> <p>1 is a slightly lighter-colored silt. Zone 2 is a black midden or concentrated debris in a silty sediment. And, in fact, the area along the lower part of all of this rest on very ancient prehuman occupation. And you can see that the configuration of the zone is somewhat different at different points in the excavation. represent individual Prehistoric graves. This is a very dense cemetery that is associated with Zone 3. And -- there we go. Thank you. These are Scalom arrow points that are associated with Zone 3. Now, the Zone 2 deposit is about this thick -- a little under a meter thick and that meter represents approximately 4,000 years of intermittent Prehistoric occupation. Scalom arrow points have Late Prehistoric. This is just a selection from the sample we have. These date roughly a thousand years old, give or take a couple hundred years. And, you can see that with fragments of Native American ceramics. And then a little bit further down in Zone 2 we have Late Archaic dart points. Umor</p>
<p>Page 12</p> <p>1 points. Godfrey points. And then still further down towards the bottom of Zone 2 we have still earlier Archaic dart points that would date roughly 2,500 to 4,000 years ago. Some Mottis points, Lange points, representative of this is, again, just a couple of examples. Okay. Now, Zone 3 is much older. Zone 3 has Paleo-Indian material. This material, as you can see up here, is roughly on to 11,000 years old. This is an early stemmed dart point. These indicate that this zone -- now, we don't have radiocarbon dates on any of this at this time, but it indicates that this is what we call the Paleo-Indian period. We're not talking about the Knoll Top. We're talking about debris from the Paleo-Indian period.</p> <p>18 Now, we come to the cemetery, which this is, and we see that this is what we call this is a well in a mudflat, this is what makes this is the Knoll Top, and here is a one-foot contour map, and you can see we have a cemetery at the cemetery and there are our excavation units.</p>	<p>Page 13</p> <p>1 The brown units are 2, by 2-meter squares that did not contain any burials. The hatched areas are excavation units that did contain burials. Now, when we put these two factors -- we put these -- if we juxtapose these and also look at the topography, we can estimate that this is the approximate location of the burials. They are roughly 22 or 23 by about 15 meters in extent, not a large area.</p> <p>At the same time, I need to point out -- this is critical that we understand that we have a very dense cemetery that we are going to go out and remove all of these burials. Our goal was to find out what the nature of the site was. This was what the Corps of Engineers primarily wanted to know. And -- so, we have this approximate area of the cemetery, and these represent 23 to 30 percent. The rest will remain intact and preserved. Again, the stratigraphy. For the archaeological purposes, we have a very good stratigraphic record. We have a very good stratigraphic record. We have a very good stratigraphic record. We have a very good stratigraphic record.</p>

4 (Pages 10 to 13)

HEARING

<p>Page 6</p> <p>1 to see those answers. But, what is most important is that I have the ability to get your views on this particular issue. A couple of additional ground rules. Each individual will be given around three minutes. The idea here is to give as many people the opportunity to speak. You may not defer your time to others. If you have additional comments that you would like to submit beyond what you are able to express during the time, please submit those in writing. You should understand that written comments are just as valid as comments made in this forum verbally. A comment form is available at the 18th Street building. You may submit written comments this evening by dropping them in the "comment" box at the 18th Street building. Please be courteous. Do have to listen. If you make a point, it will be noted. If you -- if you have the same point, it's already recorded and we'll take it in</p>	<p>Page 9</p> <p>1 geological formation of the site and also test for intact archaeological materials. And, in fact, the area along the canal -- the area along the canal -- was determined to be an excellent area for additional testing over here. Then additional testing over here showed that much of the brown area, which is cultural material, concentrated in what we call this spoil, this -- this modern sand that had been deposited many -- many decades -- probably three or four decades ago as a spoil associated with the canal. This is our backhoe work being conducted along the edge of the canal. It looks out of focus from here, is it? Well, you can see the backhoe trench, the backhoe pits. You can see the canal and the backhoe work. Okay. I don't want to zap anybody with X-rays here. Okay. The first area I want to show you is what I call the Knoll Top. And I don't mind so that I can facilitate this process a little bit hopefully. Now I'm in the way of the</p>
<p>Page 7</p> <p>1 written format. The idea is to get as many people as possible to be able to submit a comment. At this point, we will start the formal presentations and I will ask Dr. Robert Roberts to come forward, the principal investigator. We'll conduct the excavation of V798 under the contract of the Corps. Tonight he will present information on his investigation. DR. RICKLES, Thank you, Colonel. Well, this is a rather large and I would say colorful group we have here. How much time do I have? MS. MURPHY. However much time you need. DR. RICKLES. Great. Well, let's get right into this because what I would like to do is show you visual images and basically talk to those images. Archaeology is very much a visual discipline, and a picture is worth a thousand words. So let's see what we can show you about the backhoe work. This is a strange horizontal bar running through</p>	<p>Page 8</p> <p>1 is a slightly lighter-colored silt. Zone 2 is a black midden or concentrated debris in a silty sediment. And, in fact, the area along the lower part of all of this rest on very ancient prehuman occupation. And you can see that the configuration of the zone is somewhat different at different points in the excavation. represent individual Prehistoric graves. This is a very dense cemetery that is associated with Zone 3. And -- there we go. Thank you. These are Scalom arrow points that are associated with Zone 3. Now, the Zone 2 deposit is about this thick -- a little under a meter thick and that meter represents approximately 4,000 years of intermittent Prehistoric occupation. Scalom arrow points have Late Prehistoric. This is just a selection from the sample we have. These date roughly a thousand years old, give or take a couple hundred years. And, you can see that with fragments of Native American ceramics. And then a little bit further down in Zone 2 we have Late Archaic dart points. Umor</p>

3 (Pages 6 to 9)

HEARING

<p>Page 16</p> <p>1 projectile points and chert blades and raw material 2 reasonably are interested with individuals in 3 Zone 2. And I think that's the case. 4 Now, we have quartzite and limestone 5 what we're calling, basically, stakers. It's hard 6 to describe these things but they're oblong, very 7 pointed, and they're made of quartzite. And they 8 which have shallow grooves that go all the way 9 around the periphery. And we don't know what they 10 were used for. They have been called "Waco stakers." 11 I don't think they necessarily were using them 12 as weapons. They've been used as weapons. They 13 have been a weapon of some sort. We don't know at 14 this point. 15 And then we have another bluish or 16 flaking, and they're made of limestone. They're 17 alternate, bannamites which are very distinctive 18 artifacts. They basically look like wings made out 19 of stone with a hole drilled down the middle for 20 weight. And we have plummets which are 21 pear-shaped areas with a hole drilled in the narrow 22 end. Again, the function is just well understood. 23 They might have been used as some sort. They</p>	<p>Page 17</p> <p>1 might have been a weapon or a stone tool thing that 2 you would attach to a string and spin around and 3 hurt at game or whatever. 4 We have lots of mangrove shells. 5 beads. These are marine shells. So, clearly, these 6 early people were using the coast. Freshwater 7 mussel shell pendants, sunny mussel clam shell 8 teeth, fox or dog probably for beads. Red and 9 yellow and ochre paint and basketry impressed 10 asphaltum. Asphaltum, of course, is beach tar 11 that's used for waterproofing. And you've 12 probably heard of it. It's that sticky black 13 stuff. Well, it was used for a number of purposes 14 by Prehistoric people in Texas, one of which 15 apparently was to line baskets. 16 Cultural assemblage that is unique. We've never 17 seen anything like this in Texas or elsewhere. And 18 it apparently all fits together. 19 One thing that shows you why I 20 say that. This shows you the distribution of the 21 mortuary objects. And we have the people 22 representing the quartzite anders. The round ovals</p>
<p>Page 18</p> <p>1 of erosion of soil under those conditions. So, this 2 is what we're going to see. 3 And then after about four or 5,000 4 years ago, the Zone 2 campsite debris begins to 5 accumulate. So, it's clear that the people that 6 left Zone 2 were not the same people that left this, 7 because they're different. 8 It's also clear that because the 9 surface was probably eroded away, if this was used 10 as a campsite by the people at the cemetery there, 11 we wouldn't see it. 12 And then, finally, Zone 3 13 accumulates -- roughly a thousand years ago it 14 begins to accumulate and accumulates fairly rapidly 15 over that thousand or so years. There's not 16 any doubt that this is associated with Zone 1 17 people from some named falls. 18 Now, this is a complex find. It's 19 very difficult to summarize this briefly, but what 20 we're going to see is that Zone 3 points down as -- at 21 we see them right now. 22 This is one of the three largest Early 23 Archaic cemeteries in North America. There is a 24 site in Illinois and a site in Florida that, but this 25 comparable to what we're going to see, but this</p>	<p>Page 19</p> <p>1 specialists working on this. The Corps of Engineers 2 has -- has sponsored their involvement. And they 3 are analyzing the sediments for non-cultural 4 material. They're doing this. And they 5 are going to see the date about the 6 validity or not of the remains that I'm going to 7 give you here. 8 Well, which is -- which is -- and 9 still that accumulates on an earlier Pleistocene clay 10 shell ten or 11,000 years ago. And as that's 11 accumulating, we have these Paleo-Indian artifacts 12 being dug up. And they're dated 13 Then about 7,000 years ago we have the 14 interment of the Early Archaic graves and then 15 sometimes between 7,000 -- well, really between 6,000 16 and about 5,000 years ago, the top of Zone 3 17 is being dug up. Now, we know from previous research 18 that this is a very early period in the Texas 19 culture. And when you get into it, you've listed 20 mortuary objects. And you've listed that you 21 get a reduction in vegetation, a reduction in 22 grass and an expansion of things like the minkily 23 pear cactus, and the net result is you get a lot</p>
<p>Page 20</p> <p>1 stands as one of the three largest Early Archaic 2 cemeteries known 3 This cemetery predates other major 4 sites in the region by several thousand years. 5 It represents a sample of -- the human remains we 6 have in this site represent over between eight and 7 nine percent of all of the human remains that have 8 been documented in the entire world of 9 this age. 10 Now, the cemetery, by its very 11 existence, suggests a relatively large, fairly dense 12 and somewhat settled population. We wouldn't expect 13 a site of this size to be a nomadic site. It's a 14 nomadic site where you have just small groups 15 roaming around large territories. 16 This is contrary to what our 17 research has shown. It's a fairly 18 large and settled population 7,000 years ago in 19 South Texas was not expected. 20 The range and quality of the mortuary 21 objects that we've listed here are 22 unique. I don't think I've ever seen a set of 23 mortuary objects that are as unique as these. I 24 would have expected and I think that most 25 archaeologists would have expected 26 The mortuary objects of the</p>	<p>Page 21</p> <p>1 specialists working on this. The Corps of Engineers 2 has -- has sponsored their involvement. And they 3 are analyzing the sediments for non-cultural 4 material. They're doing this. And they 5 are going to see the date about the 6 validity or not of the remains that I'm going to 7 give you here. 8 Well, which is -- which is -- and 9 still that accumulates on an earlier Pleistocene clay 10 shell ten or 11,000 years ago. And as that's 11 accumulating, we have these Paleo-Indian artifacts 12 being dug up. And they're dated 13 Then about 7,000 years ago we have the 14 interment of the Early Archaic graves and then 15 sometimes between 7,000 -- well, really between 6,000 16 and about 5,000 years ago, the top of Zone 3 17 is being dug up. Now, we know from previous research 18 that this is a very early period in the Texas 19 culture. And when you get into it, you've listed 20 mortuary objects. And you've listed that you 21 get a reduction in vegetation, a reduction in 22 grass and an expansion of things like the minkily 23 pear cactus, and the net result is you get a lot</p>

HEARING

<p>Page 14</p> <p>1 uniformity between Zone 2 and Zone 2. Zone 2 is 2 probably one or 1,000 years older than Zone 3. 3 So, there are several thousand years in between. 4 I'm going to show you a schematic 5 diagram in a minute that will hopefully explain 6 the relationship between the two zones. It's 7 understandable confidence that all of the burials in 8 Zone 3 are of a comparable age and much older than 9 Zone 2. This is the map of the cemetery in the 10 area. And the blue represents Early Archaic 11 burials. We have at least 69 Early Archaic burials 12 represented here. The red or orange are Late 13 Archaic burials. And they're in the same area. 14 originated in Zone 2 and then were dug downward into 15 Zone 3. And after the yellow is the prehistoric 16 position. Noting as you know, cut and dated 17 point. This is a cluster of burials 18 that may be either Late Archaic or Early Archaic.</p>	<p>Page 15</p> <p>1 They were found right at the interface of the two 2 zones. 3 It's also possible that they fall 4 somewhere in between in time, perhaps in the Middle 5 Archaic. I don't know. I don't know. I don't know. 6 We're clearly dealing with a true cemetery. There's 7 no way this is a sort of fortuitous accumulation of 8 remains. They are simply too abundant and too 9 densely packed to be anything but that. 10 It's clearly a designated ancient 11 Prehistoric cemetery designated by the culture of 12 the people who were very productive. 13 I don't know. I don't know. I don't know. 14 use that word -- I should perhaps say a great many 15 and variety of mortuary artifacts associated with 16 the Early Archaic cemetery. These include 17 lanceolate dart points of forms similar to the 18 ones that we've listed here. And they're in the 19 audience, it's a form that is very similar to very 20 late Paleo-Indian types that are known around Texas 21 and elsewhere. 22 One example is quite large. In 23 fact, it's about a foot long. These are very unique 24 artifacts. We have pre-fossils which are unfinished</p>
<p>Page 16</p> <p>1 projectile points and chert blades and raw material 2 reasonably are interested with individuals in 3 Zone 2. And I think that's the case. 4 Now, we have quartzite and limestone 5 what we're calling, basically, stakers. It's hard 6 to describe these things but they're oblong, very 7 pointed, and they're made of quartzite. And they 8 which have shallow grooves that go all the way 9 around the periphery. And we don't know what they 10 were used for. They have been called "Waco stakers." 11 I don't think they necessarily were using them 12 as weapons. They've been used as weapons. They 13 have been a weapon of some sort. We don't know at 14 this point. 15 And then we have another bluish or 16 flaking, and they're made of limestone. They're 17 alternate, bannamites which are very distinctive 18 artifacts. They basically look like wings made out 19 of stone with a hole drilled down the middle for 20 weight. And we have plummets which are 21 pear-shaped areas with a hole drilled in the narrow 22 end. Again, the function is just well understood. 23 They might have been used as some sort. They</p>	<p>Page 17</p> <p>1 might have been a weapon or a stone tool thing that 2 you would attach to a string and spin around and 3 hurt at game or whatever. 4 We have lots of mangrove shells. 5 beads. These are marine shells. So, clearly, these 6 early people were using the coast. Freshwater 7 mussel shell pendants, sunny mussel clam shell 8 teeth, fox or dog probably for beads. Red and 9 yellow and ochre paint and basketry impressed 10 asphaltum. Asphaltum, of course, is beach tar 11 that's used for waterproofing. And you've 12 probably heard of it. It's that sticky black 13 stuff. Well, it was used for a number of purposes 14 by Prehistoric people in Texas, one of which 15 apparently was to line baskets. 16 Cultural assemblage that is unique. We've never 17 seen anything like this in Texas or elsewhere. And 18 it apparently all fits together. 19 One thing that shows you why I 20 say that. This shows you the distribution of the 21 mortuary objects. And we have the people 22 representing the quartzite anders. The round ovals</p>
<p>Page 18</p> <p>1 of erosion of soil under those conditions. So, this 2 is what we're going to see. 3 And then after about four or 5,000 4 years ago, the Zone 2 campsite debris begins to 5 accumulate. So, it's clear that the people that 6 left Zone 2 were not the same people that left this, 7 because they're different. 8 It's also clear that because the 9 surface was probably eroded away, if this was used 10 as a campsite by the people at the cemetery there, 11 we wouldn't see it. 12 And then, finally, Zone 3 13 accumulates -- roughly a thousand years ago it 14 begins to accumulate and accumulates fairly rapidly 15 over that thousand or so years. There's not 16 any doubt that this is associated with Zone 1 17 people from some named falls. 18 Now, this is a complex find. It's 19 very difficult to summarize this briefly, but what 20 we're going to see is that Zone 3 points down as -- at 21 we see them right now. 22 This is one of the three largest Early 23 Archaic cemeteries in North America. There is a 24 site in Illinois and a site in Florida that, but this 25 comparable to what we're going to see, but this</p>	<p>Page 19</p> <p>1 specialists working on this. The Corps of Engineers 2 has -- has sponsored their involvement. And they 3 are analyzing the sediments for non-cultural 4 material. They're doing this. And they 5 are going to see the date about the 6 validity or not of the remains that I'm going to 7 give you here. 8 Well, which is -- which is -- and 9 still that accumulates on an earlier Pleistocene clay 10 shell ten or 11,000 years ago. And as that's 11 accumulating, we have these Paleo-Indian artifacts 12 being dug up. And they're dated 13 Then about 7,000 years ago we have the 14 interment of the Early Archaic graves and then 15 sometimes between 7,000 -- well, really between 6,000 16 and about 5,000 years ago, the top of Zone 3 17 is being dug up. Now, we know from previous research 18 that this is a very early period in the Texas 19 culture. And when you get into it, you've listed 20 mortuary objects. And you've listed that you 21 get a reduction in vegetation, a reduction in 22 grass and an expansion of things like the minkily 23 pear cactus, and the net result is you get a lot</p>

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<p>Page 26</p> <p>1 important because we can associate things like 2 animal bones and shells and possibly plant remains 3 with specific time periods to see how adjustments 4 and changes in the environment and what went away. 5 That's a business. Thank you very much. 6 MS. MURPHY: Hi, I'm Carolyn Murphy 7 with the Corps, and I'm going to address the Corps' 8 comment tonight, that you need to fill out one of 9 these blue cards. I know we have more in the 10 back -- and give it to us -- and we'll be glad to 11 include it in the report. 12 The Channel to Victoria, or Victoria 13 Bayge Canal, is a federal construction project 14 continued by the Galveston District Corps of 15 Engineers. It's a 12-foot wide, 12-foot deep 16 channel, 12 feet deep, 12 feet wide, 12 feet 17 deep, the Channel to Victoria from the Red Bay 18 to the Gulf of Mexico. 19 Construction of the channel 20 began in 1996 and will conclude 21 this year. 22 A series of archaeological surveys and 23 site investigations were conducted by the Corps in 24 conjunction with this construction, including the 25 work at V198.</p>	<p>Page 25</p> <p>1 Testing of V198 was initiated by the 2 Corps in November 2000 to address the area of 3 potential direct and indirect construction impacts 4 of channel widening and to obtain sufficient 5 data to support the Corps' decision on when 6 in the event that construction impacts could not be 7 avoided. 8 All work was conducted by Coastal 9 Resources, Inc. (CRI). 10 Testing has confirmed that V198 is a significant 11 multi-component Prehistoric site containing cultural 12 deposits dating to the Paleo-Indian through Late 13 Archaic. 14 As a result of this testing, it was 15 determined that the area of direct construction 16 impacts along the west bank of the channel does not 17 contain any in-situ archaeological deposits. It does 18 contain archaeological deposits that are 19 adjacent to the existing channel. 20 Archaeological deposits remained immediately 21 adjacent to the existing channel. 22 The V198 site is on the west bank of the 23 channel, included 12 back-bone trenches, excavation of 24 these 2 meter by 2 meter units, 12 shovel tests and</p>
<p>Page 27</p> <p>1 important because we can associate things like 2 animal bones and shells and possibly plant remains 3 with specific time periods to see how adjustments 4 and changes in the environment and what went away. 5 That's a business. Thank you very much. 6 MS. MURPHY: Hi, I'm Carolyn Murphy 7 with the Corps, and I'm going to address the Corps' 8 comment tonight, that you need to fill out one of 9 these blue cards. I know we have more in the 10 back -- and give it to us -- and we'll be glad to 11 include it in the report. 12 The Channel to Victoria, or Victoria 13 Bayge Canal, is a federal construction project 14 continued by the Galveston District Corps of 15 Engineers. It's a 12-foot wide, 12-foot deep 16 channel, 12 feet deep, 12 feet wide, 12 feet 17 deep, the Channel to Victoria from the Red Bay 18 to the Gulf of Mexico. 19 Construction of the channel 20 began in 1996 and will conclude 21 this year. 22 A series of archaeological surveys and 23 site investigations were conducted by the Corps in 24 conjunction with this construction, including the 25 work at V198.</p>	<p>Page 27</p> <p>1 the looking at earlier times, like biological 2 affinity. How were these early people related to, 3 say, people in other areas of North America? What 4 this might tell us about migration routes into Texas 5 and how they lived and what they ate and what they 6 people? This is a possibility that we might be able 7 to eventually see this. 8 And, finally, we have the study of 9 health, stress and diet and the study of 10 things versus ways of looking at bones and studying 11 it. 12 And I think that the only thing I need 13 to add here, which is that the Red Bay 14 site, I'm basing this on four radiocarbon dates, 15 accelerator mass spectrometry on human bone collagen 16 that dated the early cemetery between 6,300 and 17 7,500 years old. 18 And there's some reason and evidence 19 that shows that human bone collagen dates tend to be 20 a little bit too recent, so, actually, those should 21 probably be taken as a minimum, possibly a little 22 older than that by several hundred, perhaps a 23 thousand, or 2,000 years.</p>

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<p>Page 24</p> <p>1 Texas point type. All right. 2 Just very briefly, we're in the East 3 Middle. Nothing terribly exciting here. You're 4 and that's what we're looking at. 5 Archaic and Late Prehistoric deposits 6 in the top, a rather thick zone, and then a black 7 zone fine sand and air casting on the Pleistocene 8 surface. This is a very good example of a site 9 example from 11,400 B.P. roughly. This is a nice 10 site in Texas but it's much more 11 common in Arkansas and Louisiana. 12 The late Archaic and Louisiana 13 artifact classes that represent various activities 14 on the site. These are not time diagnostic but 15 they're function-specific. We have knives, 16 stone tools and ornaments. And, respectively, 17 various forms of scrapers. 18 Very good bone preservation. We have 19 bone tools and ornaments. And, respectively, 20 some early pottery. This pottery is similar to 21 Theofanets material from the upper Texas Coast and 22 Louisiana. We never know that it came from far</p>	<p>Page 25</p> <p>1 show, but this is similar to that material. And we 2 don't have any radiocarbon dates for these 3 sites but -- these levels, but judging by the dirt 4 points that are found in proximate association, 5 we're probably looking at 2000 or so years ago. 6 This is a very good example of a site 7 through the native people of this region had 8 ceramics. Okay. 9 So, to sum up the major research 10 topics at the site, we have a very good 11 cultural and history, human ecology and environment 12 and, of course, the Early Archaic cemetery and its 13 unique bioarchaeological potential. 14 We have a very good example of a site 15 system just in the shuffles here but I think, David, 16 if you could go back to just -- yes, 17 I think you've pretty much seen all 18 that. We don't yet have complete stratigraphic 19 data on the site. 20 have remarkably complete representation of time 21 periods from Paleo-Indian through the various 22 Archaic stages into what we call the Late 23 Prehistoric. 24 We've got intact identifiable 25 components representing these periods which is very</p>
<p>Page 23</p> <p>1 artifact forms suggest wide-ranging connections 2 between the Bonkeye Knoll people and other regions. 3 We have that that came from Central Texas. We have 4 similarities, for example, with the sites in 5 West Texas. We found a subset. They're a subset of 6 South Texas. 7 So, we have this evidence for 8 extensive trade and connections with the early 9 Archaic. The Bonkeye Knoll site suggests a rather 10 developed, rather complex and a very, I would say, 11 well-organized cultural system. 12 The late Archaic sites suggest 13 connections with the sites in the 14 period. And, finally, the whole assemblage 15 represents a previously unknown early culture. 16 We're going to move on quickly to the 17 West. Sites in the West, we have a site here 18 that's here. And we have a deep excavation in the 19 area representing about 6,000 years of occupation. 20 There is a site up at the top of the site, there 21 turned out to be a site with all the cultural debris 22 scattered through the various levels. That's 23 another shot of a unit floor with shell, deer bone 24 and scattered artifacts.</p>	<p>Page 23</p> <p>1 The stratigraphy is in four zones, the 2 bottom. We have that that came from Central Texas. We have 3 zones we've already geologically dated to 40,000 4 years ago. 5 This zone here [Zone 3] is about five, 6 6,000, and that's in three to 4,000 and this is 7 just above that. 8 And we have an abundance of cultural 9 materials. Zone 1, late points, Late Archaic; Zone 10 2, early points, Late Archaic; Zone 11 roughly 3, 2,000 to 4,500, some chert ranges, 12 And then below that in Zone 3 we have 13 a very nice assemblage of Early Archaic points. 14 These are generally believed to be in the 6,000 to 7,000 15 range. We have a lot of radiocarbon dates on the 16 quartz and put this zone at 4,500 years to 6,000 17 years old, which fits very nicely with our 18 expectations. 19 These elongated unnotched, unnotched 20 points we call Ketchikan points. We have some of 21 these in Zone 3 which would suggest that they're 22 roughly 5,000 years old, which is the first time I 23 think that we're able to date this common South</p>

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<p>Page 34</p> <p>1 speak and say a few words about the Buckeye Knoll 2 Site, as I am with the Texas Historical 3 Commission part of the State government, and we are 4 the State agency for historic preservation looking 5 out for the interests of Texas in areas such as 6 archaeological potential. 7 But what I want to do tonight is talk 8 about the Buckeye Knoll Site and give you the 9 general background information. There are indications that 10 they date much earlier. 11 The site itself represents the full 12 span -- nearly the full span of human history in 13 this area, fully reported upon and fully 14 analyzed, the non-normative materials should be, I 15 think, made available for display in the museum -- 16 here in Brownsville. We learn about the culture, diet 17 and the fitness of these people from the direct 18 study of the skeletal remains. 19 We can learn about the overall 20 population of the site. Again, that is an unknown early 21 culture that we didn't know existed until the 22 excavations uncovered the remains and the artifacts 23 of these people. 24 I know about the social and 25 ideological views of these people from the mortuary 26 patterns, from the materials they placed in the 27 graves, from other artifacts that have been 28 excavated. Dr. Ricklis, about mortuary trade. 29 These people seem to have been less mobile or a 30 little bit more settled than has been the 31 expectation in North American archaeology for this 32 area. Dr. Ricklis, about mortuary trade. 33 Many of these objects that were buried 34 with these people were made out of exotic materials 35 that came from other places. 36 We can also look at hunting and 37 fishing and their economic patterns; how did these 38 archaeological issues and questions that need to be 39 addressed to the full analysis of the site. 40 But there's more. Dr. Ricklis talked</p>	<p>Page 35</p> <p>1 It's the position of my agency, the 2 Texas Historical Commission, that a full analysis 3 needs to take place because there's so much we can 4 learn from the collection. This is the site of 5 immense importance. There's no doubt about that. 6 We learned some of that tonight from Dr. Ricklis. 7 There was a very good reason for that. 8 The excavations that took place out 9 there were a part of a larger project. 10 The project was done under federal law and 11 regulations. And as a result, we will have an 12 opportunity and a requirement, I've so often to 13 happen to the site. Our opinions of what should 14 be done are very different. 15 The excavations were very carefully 16 excavated and a lot of great information was 17 gathered. Dr. Ricklis compared the site 18 to the other sites that Dr. Ricklis compared the site 19 to are the Carter Mills where some between 160 20 and 170 burials were excavated and then the Wardlow 21 site down in Houston where a cemetery was found in a 22 pit dug by the Corps of Engineers. 23 All three sites are very, very 24 important and it shows the Buckeye Knoll.</p>
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<p>Page 32</p> <p>1 Federally-recognized tribes based on geographical 2 proximity of historic tribal range to the Texas 3 coast, known in the area along 4 the Texas coast at the request of the site. 5 The first meeting with tribes was held 6 February the 12th, 2002, in Victoria. In addition, 7 because of the public interest in this project, a 8 meeting was held at the site in Victoria, Texas 9 this year to provide information and solicit 10 comments from the public. This meeting tonight is 11 part of our outreach effort. 12 The meeting was held in the near future 13 with the Society for American Archaeology, the Texas 14 Archaeological Society and the Council of Texas 15 on this project. We will look to these 16 agencies to address technical 17 issues pertaining to the site. 18 In conclusion, the Corps is committed 19 to providing a technical report of findings for this 20 project and to pay for improved facility at the 21 discretion of DuPont. 22 We are aware of the significance of 23 the site. The Doan report on the bioarchaeological</p>	<p>Page 33</p> <p>1 context of the site was prepared at the request of 2 the site. The Doan report on the bioarchaeological 3 value of the collection. 4 Since October we have pursued a 5 detailed inventory of non-normative artifacts from 6 the site. The inventory is being completed and 7 of the site are continuing, and background portion 8 of the technical report are under preparation. 9 All interested parties will be heard. 10 At the same time, we will be working with the 11 recommendations of the SHPO, DuPont, Native 12 Americans, scientists and the public in determining 13 the nature and extent of further analysis to be 14 conducted. We will be working with the Corps on 15 the level and extent of analysis and reporting tests 16 with the Corps. 17 At this time, I would like to 18 recognize the staff of the Corps, the Historic 19 and Archeological Officer who wishes to make a 20 presentation. 21 DR. BRUSETH: Thank you. Let's see. 22 We will get this up and running with the Corps. I 23 appreciate the opportunity to be here tonight to</p>
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<p>Page 30</p> <p>1 a magnetometer survey to identify subsurface 2 features. 3 The Texas SHPO concurs that no 4 additional magnetometer surveys are needed 5 necessary for this site. The SHPO 6 identified the extensive mortuary complex that is 7 the subject of our investigation at the site. 8 testing. When it became apparent that extensive 9 human remains were present and that both direct and 10 indirect constitutions impacts to the mortuary 11 complex were present, the Corps recommended that no 12 work be done by the Corps to cease excavation at the end 13 of March 2001. A coordination meeting with the SHPO 14 was held on May 8, 2001. 15 At that time, approximately five to 16 six burials were exposed. The Corps recommended that no 17 further excavation be conducted and that no 18 additional burials be removed. 19 The SHPO recommended that the position of 20 the site would not be impacted by construction, the 21 SHPO demanded that all open units be completely 22 excavated and all exposed burials be excavated and</p>	<p>Page 31</p> <p>1 removed. 2 This was completed in the excavation of 3 approximately 70 additional burials. The SHPO 4 concurred that no new excavation units would be 5 opened. This modified work was completed by Coastal 6 in July. At the conclusion of excavation, the 7 open units were carefully backfilled and the site 8 was fenced by DuPont. On June 18, 2001, a meeting 9 was held with the SHPO and DuPont to address how the 10 site collection would be managed. 11 At that time, the SHPO expressed concern over 12 disposition of the site. DuPont 13 expressed concern over disposition of the human 14 remains and requested coordination with Native 15 Americans in the region. 16 The SHPO requested this request and 17 requested the Corps initiate Native American 18 consultation. Native American consultation was not 19 initiated by the Corps for V739 prior to this point 20 in time. The SHPO and DuPont 21 identified federal agencies that failed to 22 identify tribes willing to consult on either our 23 collections or our projects. 24 We have since initiated consultation under 25 36CFR480 was initiated for V739 in July 2001 with</p>
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<p>Page 44</p> <p>1 above, it's clearly data recovery, which is a 2 part of these projects where they go in and do 3 large-scale excavations, recover as much information 4 as you can find. 5 So, you're saying that the document here which is 6 the data recovery plan. According to that 7 programmatic agreement, that basic document for the 8 Barge Canal, it says that when the Corps of 9 Engineers is going to impact the site, they need 10 to have a programmatic agreement with the Corps of 11 Engineers. And that's the programmatic agreement 12 with that archeological site. This is Page 12 of 13 the document. And it says that what they want to do 14 is to do a programmatic agreement with the Corps of 15 Engineers. And that's the programmatic agreement 16 by a qualified archaeologist and small quantities 17 will be subject to isotope analysis as well as 18 radiocarbon date. And it's the position of the 19 Corps of Engineers that the programmatic agreement 20 that is governing legally. We believe this is the 21 governing document that the decision on analysis has 22 been made for this particular site, that's 23 the programmatic agreement. And that's the 24 document that is referenced in that programmatic agreement that 25 pertains to the issue of the human remains and how</p>	<p>Page 45</p> <p>1 they deal with them. It's important that I point 2 this out because my agency feels this is very, very 3 important. And I think that's the case from this site. 4 I think that's the case from this site. 5 At the same time, we are very 6 sensitive to the concerns of Native Americans who 7 see their ancestors having been excavated and are 8 concerned about that, too. We feel like all those 9 remains need to be reinterred at some point in time. 10 We want that period of time for analysis to be as 11 short as possible. And that's the guidance here from the federal 12 government. This guidance here from the federal 13 government helps us determine how we handle these 14 kinds of human remains. And the part of here 15 that says that the programmatic agreement is the 16 study is done, the need for study does not outweigh 17 the need to respect the concerns of such 18 descendants. The re-burial should occur without 19 prior notice. The second part of this is, we feel -- 20 And this is the federal government's concern how we 21 handle this -- the scientific research involving 22 human remains and graves outweighs any objection</p>
<p>Page 43</p> <p>1 Again, that delineating both places in 2 1997 through some exchange between the Corps of 3 Engineers and the Texas Historical Commission. So 4 there was beyond that. We're beyond evaluation. 5 This work was done prior to 1997. It encountered a 6 programmatic agreement. And that's the programmatic work was 7 done in 1997. And that's the programmatic work was 8 done in 1997. And that's the programmatic work was 9 done in 1997. And that's the programmatic work was 10 done in 1997. And that's the programmatic work was 11 done in 1997. And that's the programmatic work was 12 done in 1997. And that's the programmatic work was 13 done in 1997. And that's the programmatic work was 14 done in 1997. And that's the programmatic work was 15 done in 1997. And that's the programmatic work was 16 done in 1997. And that's the programmatic work was 17 done in 1997. And that's the programmatic work was 18 done in 1997. And that's the programmatic work was 19 done in 1997. And that's the programmatic work was 20 done in 1997. And that's the programmatic work was 21 done in 1997. And that's the programmatic work was 22 done in 1997. And that's the programmatic work was 23 done in 1997. And that's the programmatic work was 24 done in 1997. And that's the programmatic work was 25 done in 1997. And that's the programmatic work was</p>	<p>Page 43</p> <p>1 negotiating. And when we come to agreement between 2 us and the Corps, we outline our agreement in a 3 document that's called a programmatic agreement that 4 happens to archeological sites that are encountered 5 in the Victoria Barge Canal. You can see right here 6 the programmatic agreement between the Corps of 7 Engineers and the Advisory Council of Historic 8 Preservation and another federal agency that 9 Victoria Project. That document back in 1990 10 was the programmatic agreement that was going to 11 happen on that barge canal when archeological sites 12 are encountered, here is how the Corps of Engineers 13 is going to handle them. We have another document here that was 14 submitted to us in December of 2000 that basically 15 says -- the Corps of Engineers says that they were 16 going to -- what they thought impacted the Baskies 17 archeological data recovery plan for site 41V198. 18 So, clearly, the Corps of Engineers 19 paper work shows that we are beyond the evaluation</p>

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<p>Page 40</p> <p>1 Initially says, every state, you will have State 2 laws that are in place involving the federal government 3 in that state. 4 So, our role is to provide our views 5 to the Corps of Engineers involving in this case the 6 Barge Canal Site. 7 In our state, Larry Ollis is the State 8 Historic Preservation Officer, and Jim the Deputy 9 State Historic Preservation Officer. 10 It is the law -- the federal law that is governing 11 this. It's not -- some people seem to think that a 12 law called NAGPRA, Native American Graves Protection 13 and Repatriation Act, that's the law that's governing 14 the National Historic Preservation Act of 1966. 15 Section A specific section of it called 16 Section 303. And that's the section that's governing 17 the Corps of Engineers to consider and -- and try to 18 protect or otherwise investigate important 19 archeological and historical sites and buildings 20 that they found on the Barge Canal. 21 Our project is the Victoria Barge 22 Canal, the widening of it. Section 106 comes into 23 play. The federal government has developed 24 State Historic Preservation Officer, and Jim the Deputy 25 State Historic Preservation Officer, and Jim the Deputy</p>	<p>Page 41</p> <p>1 Canal, the widening of it. Section 106 comes into 2 play. The federal government has developed 3 State Historic Preservation Officer, and Jim the Deputy 4 State Historic Preservation Officer, and Jim the Deputy 5 State Historic Preservation Officer, and Jim the Deputy 6 State Historic Preservation Officer, and Jim the Deputy 7 State Historic Preservation Officer, and Jim the Deputy 8 State Historic Preservation Officer, and Jim the Deputy 9 State Historic Preservation Officer, and Jim the Deputy 10 State Historic Preservation Officer, and Jim the Deputy 11 State Historic Preservation Officer, and Jim the Deputy 12 State Historic Preservation Officer, and Jim the Deputy 13 State Historic Preservation Officer, and Jim the Deputy 14 State Historic Preservation Officer, and Jim the Deputy 15 State Historic Preservation Officer, and Jim the Deputy 16 State Historic Preservation Officer, and Jim the Deputy 17 State Historic Preservation Officer, and Jim the Deputy 18 State Historic Preservation Officer, and Jim the Deputy 19 State Historic Preservation Officer, and Jim the Deputy 20 State Historic Preservation Officer, and Jim the Deputy 21 State Historic Preservation Officer, and Jim the Deputy 22 State Historic Preservation Officer, and Jim the Deputy 23 State Historic Preservation Officer, and Jim the Deputy 24 State Historic Preservation Officer, and Jim the Deputy 25 State Historic Preservation Officer, and Jim the Deputy</p>
<p>Page 39</p> <p>1 remains. When you look at them -- and this is the 2 facial reconstruction of the Paleo-Indian man from 3 the Kennewick Site -- they have somewhat 4 European-looking characteristics to them. 5 And that's the reason why they got 6 into the North American continent, how they moved 7 into the North American continent, how they moved 8 into the North American continent, how they moved 9 into the North American continent, how they moved 10 into the North American continent, how they moved 11 into the North American continent, how they moved 12 into the North American continent, how they moved 13 into the North American continent, how they moved 14 into the North American continent, how they moved 15 into the North American continent, how they moved 16 into the North American continent, how they moved 17 into the North American continent, how they moved 18 into the North American continent, how they moved 19 into the North American continent, how they moved 20 into the North American continent, how they moved 21 into the North American continent, how they moved 22 into the North American continent, how they moved 23 into the North American continent, how they moved 24 into the North American continent, how they moved 25 into the North American continent, how they moved</p>	<p>Page 40</p> <p>1 about that out of all the human remains that have 2 been found in the state of Washington, the 3 Kennewick Site is the most interesting. That 4 is truly incredible to see that kind of a sample 5 from this location in the state of human remains, 6 you have the ability to begin addressing some other 7 kinds of issues that are big, broad issues that 8 relate to kind of wide archaeological problems 9 involving in some cases the peopling of North 10 America. 11 The current ideas and theories of how 12 people got into the North American continent are 13 changing fairly dramatically. We're beginning to 14 see that there are a number of people coming 15 into the North American continent, rather 16 than just simply the Bering Strait land bridge 17 coming across North America. 18 There are other theories coming to suggest 19 that there are other avenues, such as pelagic people 20 coming in from Europe into the North American 21 continent. 22 Some of the evidence that some people 23 are using is some of the very context dated</p>

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<p>Page 58</p> <p>1 One of the things that I have learned 2 is that Texas archaeology is not just 3 about the past. It's about the future. 4 I would further add that the letter 5 read by Professor Thoms from the SAA misrepresents 6 the SAA position. The president of the SAA, who I 7 know is Dr. G. R. Waters, is a very capable 8 Waterworth on January 7th, and he stated if the 9 Corps now allows that recovered materials be buried 10 without analysis, the agency will have failed to 11 do its job. I think that's a very important point 12 that should be made. And further more than 13 that, the Corps will have actually caused far more 14 adverse effects to the site than would have been 15 caused by the underlying issues. I think the Corps 16 should be commended for what they've done. Thank you. 17 MS. MURPHY: After Jamie Warren is 18 Linda Wolf. 19 MS. JAMIE WARREN: Thank you for the 20 opportunity to speak. I'm from the University of 21 Waco, president of the future Historian, Victoria 22 Crane Middle School. It is very hard to question 23 whether the site should be studied further or not 24 because the obvious answer is yes. I think that my 25 fellow jurors here at Crane Middle School see</p>	<p>Page 59</p> <p>1 things also about this study from a scientific 2 viewpoint, is that it gives us a good statistical 3 background. Thank you. 4 MS. MURPHY: After Tom Hester will be 5 archaeologist in Texas. I'm speaking as the 6 Chairman of the South Texas Archaeological 7 Association headquartered in San Antonio. Those of 8 us who have been there, would you rate your 9 hands? Thank you. 10 It is the second largest professional 11 and avocational organization in the state formed in 12 1934. It has over 10,000 members. We have 13 plains especially in Victoria County such as E. A. 14 Smedin and Bill Birmingham, who have done legendary 15 work for Texas archaeology. 16 I would like to have to Colwell 17 comment. We requested consulting party status 18 that was denied us. It was given to the Society for 19 Applied Archaeology, a totally different group. 20 I think that the archaeological field is still 21 a professional and political and to the TIAS, which we 22 were very glad to see.</p>	<p>Page 60</p> <p>1 the STAAs support full analysis 2 of these recovered materials. Full artifact analysis, full 3 skeletal analysis. 4 I would further add that the letter 5 read by Professor Thoms from the SAA misrepresents 6 the SAA position. The president of the SAA, who I 7 know is Dr. G. R. Waters, is a very capable 8 Waterworth on January 7th, and he stated if the 9 Corps now allows that recovered materials be buried 10 without analysis, the agency will have failed to 11 do its job. I think that's a very important point 12 that should be made. And further more than 13 that, the Corps will have actually caused far more 14 adverse effects to the site than would have been 15 caused by the underlying issues. I think the Corps 16 should be commended for what they've done. Thank you. 17 MS. MURPHY: After Jamie Warren is 18 Linda Wolf. 19 MS. JAMIE WARREN: Thank you for the 20 opportunity to speak. I'm from the University of 21 Waco, president of the future Historian, Victoria 22 Crane Middle School. It is very hard to question 23 whether the site should be studied further or not 24 because the obvious answer is yes. I think that my 25 fellow jurors here at Crane Middle School see</p>	<p>Page 61</p> <p>1 the colossal amount of information that can be 2 gathered at an archaeological site. The possibility 3 of history being rewritten all the way back to the 4 time of early man is depending on your decision. 5 MS. MURPHY: After Tom Hester will be 6 archaeologist in Texas. I'm speaking as the 7 Chairman of the South Texas Archaeological 8 Association headquartered in San Antonio. Those of 9 us who have been there, would you rate your 10 hands? Thank you. 11 It is the second largest professional 12 and avocational organization in the state formed in 13 1934. It has over 10,000 members. We have 14 plains especially in Victoria County such as E. A. 15 Smedin and Bill Birmingham, who have done legendary 16 work for Texas archaeology. 17 I would like to have to Colwell 18 comment. We requested consulting party status 19 that was denied us. It was given to the Society for 20 Applied Archaeology, a totally different group. 21 I think that the archaeological field is still 22 a professional and political and to the TIAS, which we 23 were very glad to see.</p>
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<p>Page 54</p> <p>1 to see discussed at the consulting party meetings 2 are several Section 106 compliance issues that are 3 still unclear to us. The Corps plans for future 4 work. We're looking for information on the 5 American tribes and other possible descendant 6 communities, cultural affiliation issues for human 7 remains and other materials at 41 VT38, the 8 site. We're looking for information on the 9 solutions to the problems that arise from 10 conflicting values attributed to the site. 11 We realize that the issues 12 surrounding the site and the materials that have 13 been identified are complex and that the Corps is 14 charged and that the Corps is doing its best to deal 15 fairly and respectfully with all of the concerns of 16 consulting partners. Given the exceptional 17 responsibility to Native American tribes and 18 the agency stewardship responsibilities under the 19 National Historic Preservation Act, the decisions to 20 be made are very important. We think that we 21 should be able to help. We think that allowing SAA to 22 participate and consult as a consulting party. And 23 we hope that our participation will be of material 24 assistance to you in resolving issues surrounding</p>	<p>Page 55</p> <p>1 this undertaking." "Thank you. 2 Elizabeth Rebeschagner will be Floyd Easterwood. 3 name is Elizabeth Rebeschagner, and I'm speaking 4 interested in this from so many people 5 viewpoints. But I'm also very happy to see the 6 respect being shown from their own viewpoints. 7 As an educator, I think it's extremely 8 important that the studies continue but also that 9 human remains be respected. 10 I think that the plans to 11 rebury them are being supported by so many 12 individuals and groups in this room. Thank you. 13 MS. MURPHY: After Floyd Easterwood 14 will be CAR FLOYD EASTERWOOD: Hi, I'm Floyd 15 Easterwood. I'm Vice President of the Lone Star 16 Archaeological Society. And we think this is an 17 extremely important site to have in our country. 18 I think that we should be able to help. I don't want 19 any time adding into that.</p>	<p>Page 56</p> <p>1 But since we all did originate in 2 the past at one time or another as hunters and 3 gatherers. We're looking for information on the 4 fall back on and relate to. And these remains 5 have already been dug. \$900,000 of tax money that 6 been already spent. The site should be fully 7 analyzed, the various issues of the permits, and can 8 be resolved. We're looking for information on the 9 and analysis occurring. Thank you. 10 MS. MURPHY: After Glen Deora will be 11 Ruth Marie. 12 MS. RUTH MARIE: I'm from the Glen Deora farm 13 Florida State University. For the last 30 years of 14 so I have been involved in archaeology in Texas, 15 California and Florida and a couple of other places 16 around the world. We're looking at the total inventory of 17 sites in North America, we probably know about 18 19-500,000 archaeological sites. In the last 30 years 19 I put together an inventory of about 400 sites that 20 individuals per site. 21 So, when you look at the broad 22 picture, Baskoys Knoll is really an incredible 23 opportunity for us to understand more about early</p>	<p>Page 57</p> <p>1 human history. And the really exciting thing 2 when we study human skeletal material. We're asking 3 questions about what were individual people's lives 4 like in the past. And there simply is no other way 5 to get that information. 6 And I think that the thing that you 7 should remember is by the study of human skeletal 8 material, it also provides us information that has 9 direct applications in the modern day in terms of 10 forensic studies where we have to identify 11 in forensic studies where we have to identify 12 skeletal material for modern crime. So there's a 13 large network of information we can get from 14 studying skeletal material. 15 And I think that it's a once in a lifetime 16 chance so we should do a full analysis. And I don't 17 think anybody has any issue with doing re-burial at 18 the appropriate time. Thank you. 19 MS. MURPHY: After Ruth Marie 20 will be Ruth Marie. 21 MS. RUTH MARIE: My name is Ruth 22 Marie, and I'm getting into archaeology late in my 23 career. I'm really excited to be here. I don't want 24 to be late. I want to be on time. I want to be on 25 time. I want to be on time.</p>
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<p>Page 68</p> <p>1 nothing better than a full scientific study 2 of the Victoria County Historical Commission 3 are present to please raise your hands and those who 4 support full analysis again raise your hand. Thank 5 you. 6 MS MAUREN BROWN: Hello. My name is 7 Maureen Brown. A lot of archaeologists know me as 8 Bend Sinuon College and I'm currently working on 9 an oral history project. I've developed a tight 10 on campus. 11 We are very, very excited to have this 12 opportunity to share our history in the region, not 13 just for the sake of the region, but to have 14 that that would be very, very important to 15 skeletal analysis and artifacts analysis and a 16 full that very important story for future 17 generations. 18 MS MURPHY: Okay. Those are all the 19 registered speakers we have. Is there anyone we 20 have missed or anyone who would like to speak? 21 Okay. 22 At this point in time we will start in</p>	<p>Page 69</p> <p>1 with that I can make a smart decision. That's why 2 we're here tonight, so I can hear you, so I can make 3 a smart decision. 4 The process will go on until I'm 5 sure that the information that we're 6 interested in this project. Based on that 7 information, based on the legal requirement of the 8 process, based on the advice I get from the SHPO, I 9 will make a decision. 10 I'm going to give you an 11 exact time line because I'm not sure of it 12 to be done. But the bottom line is, we go 13 to be satisfied that I have the information to make 14 a good, informed decision. 15 I know a lot of you would like a 16 specific site, I'm not going to give that to you 17 until I've done the work. 18 MS MURPHY: QUESTION: "Why have the 19 potter and Dr. Rickles wholly ignored the Early 20 Archaic, Lane Paleo-Indian cemetery?" Allow Dr. 21 Rickles to answer that. 22 I think that's been done. 23 MR. FESTER: Referring to</p>
<p>Page 69</p> <p>1 illustrations of graves and the artifacts which the 2 artifacts, if they were illustrated, would provide 3 the audience an even greater element of suspense 4 as well. 5 MS MURPHY: QUESTION: "When 6 specifically did the Corps conduct Native American 7 groups and why? Specifically did they contact 8 groups and why? Specifically did they contact 9 July of 2001. And the tribes that were contacted 10 are the Alabama, Chickasaw, Choctaw, Creek, Seminole, 11 Alabama, Chickasaw, Choctaw, Creek, Seminole, 12 Choctaw, Creek, Seminole, Chickasaw, Alabama, 13 Choctaw, Creek, Seminole, Chickasaw, Alabama, 14 Choctaw, Creek, Seminole, Chickasaw, Alabama, 15 Choctaw, Creek, Seminole, Chickasaw, Alabama, 16 Choctaw, Creek, Seminole, Chickasaw, Alabama, 17 Choctaw, Creek, Seminole, Chickasaw, Alabama, 18 Choctaw, Creek, Seminole, Chickasaw, Alabama, 19 Choctaw, Creek, Seminole, Chickasaw, Alabama, 20 Choctaw, Creek, Seminole, Chickasaw, Alabama, 21 Choctaw, Creek, Seminole, Chickasaw, Alabama, 22 Choctaw, Creek, Seminole, Chickasaw, Alabama, 23 Choctaw, Creek, Seminole, Chickasaw, Alabama, 24 Choctaw, Creek, Seminole, Chickasaw, Alabama, 25 Choctaw, Creek, Seminole, Chickasaw, Alabama,</p>	<p>Page 69</p> <p>1 to the portion of the site that contains intact 2 remains, and we did no contact mitigation. 3 The Corps is not going to do any work that 4 can force -- the Corps can foresee that would 5 require further impact to the site, and we have no 6 plans at this time to do any further work at the 7 site or to impact any other area of the site. 8 I'll just say that. 9 That's the portion of the site 10 that we did impact by planned widening did not 11 contain intact archeological remains. 12 QUESTION: "Does the Corps concede 13 that the Corps did not do any work that would 14 recovered from the site and has the ultimate 15 authority to decide their disposition, the Corps has 16 the responsibility for analysis report and 17 curation?" 18 ANSWER: As we have indicated, we 19 will make a decision. We are committed to producing 20 a technical report of findings. The nature and 21 extent of analysis is what is being -- is what is 22 being done. We are committed to producing a report 23 pay for curation should that be DuPont's decision. 24 QUESTION: "Since the Buskirk Knoll 25 prehistoric burial site at DuPont is so significant 26 on a local and state, national and international</p>

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<p>Page 64</p> <p>1 all politics. 2 We are dealing with a number of 3 different interests and groups and we are obligated 4 to obtain their input before we make a final 5 decision. 6 QUESTION: "When the tanks were 7 disturbed, was there a 'stop work order' issued by 8 the Corps of Engineers?" 9 ANSWER: This one, I think, we're 10 going to have to go back to the beginning. There 11 was notification of the SHPO. I do not follow we 12 stopped work but we will check on that. 13 QUESTION: "Why should determination 14 of these areas be prevented when an act of burial 15 above a decision?" 16 ANSWER: As long as we are in 17 possession of the collection, we are obligated to 18 maintain it and to preserve it and to not allow it 19 to decay. 20 QUESTION: "The scope of study states 21 that the Corps will submit all human bone elements 22 for full analysis. Why would the Corps commit to 23 this before the SHPO has been consulted?" 24 ANSWER: Well, I thought I have read 25 this one. We answered it.</p>	<p>Page 65</p> <p>1 We did not initiate a consultation 2 with Native Americans on VT98 before the work began 3 because to that point in time we had not identified 4 any tribes. We now do have tribes who have 5 expressed an interest to consult, and we have 6 initiated that consultation. 7 QUESTION: "What is the timetable for 8 Corps decision making? How many more meetings will 9 there be with Native Americans and with the public 10 before deciding?" 11 ANSWER: You know we're going to have 12 more meetings. We're going to have meetings with 13 everyone that has had an opportunity to participate and 14 provide their comments. 15 I am sure that there will be several 16 more meetings with the Native Americans and the SAA, TMS and CTA 17 groups. How many that will be and exactly when this 18 process will end, I can't tell you at this time. 19 COLOSSAL: "I'm not sure if we've addressed 20 that. As COLLOSSAL has said, the SHPO has address 21 got to make a very tough decision. And I've got to 22 take into account -- I've got to take all the data 23 that I can possibly collect that I feel comfortable</p>
<p>Page 65</p> <p>1 on the questions. If -- if the question was 2 answered in the presentations, I am not going to -- 3 to include it. I have some questions that we only 4 directed to DuPont and we will not be addressing 5 those as well. 6 We're holding the -- the questions 7 that pertain to the health of Coastal Environments 8 folks answer those. If we don't have time, we will 9 post answers on our Web site. 10 (The following questions were read and 11 answered by DuPont.) 12 QUESTION: "Having adversely affected 13 one of the most significant sites in North America, 14 why is the Corps considering returning the artifacts 15 without conducting the skeletal analysis and genetic 16 complete under their legally binding Programmatic 17 Agreement with the State of Texas?" 18 UNIDENTIFIED SPEAKER: That's the U.S. 19 Army. 20 MS MURPHY: Answer: We are 21 conducting consultations and public outreach as 22 required by federal regulations to obtain input from</p>	<p>Page 66</p> <p>1 We are dealing with a number of 2 different interests and groups and we are obligated 3 to obtain their input before we make a final 4 decision. 5 QUESTION: "When the tanks were 6 disturbed, was there a 'stop work order' issued by 7 the Corps of Engineers?" 8 ANSWER: This one, I think, we're 9 going to have to go back to the beginning. There 10 was notification of the SHPO. I do not follow we 11 stopped work but we will check on that. 12 QUESTION: "Why should determination 13 of these areas be prevented when an act of burial 14 above a decision?" 15 ANSWER: As long as we are in 16 possession of the collection, we are obligated to 17 maintain it and to preserve it and to not allow it 18 to decay. 19 QUESTION: "The scope of study states 20 that the Corps will submit all human bone elements 21 for full analysis. Why would the Corps commit to 22 this before the SHPO has been consulted?" 23 ANSWER: Well, I thought I have read 24 this one. We answered it.</p>

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<p>Page 74</p> <p>1 since it's not only a Victoria issue?"</p> <p>2 ANSWER: It was posted on our Web</p> <p>3 site. In addition, we had a public</p> <p>4 meeting. We attempted to spread word of this</p> <p>5 meeting as best we could, and I think tonight</p> <p>6 turned is a demonstration that an awful lot of</p> <p>7 people are interested in this.</p> <p>8 QUESTION: "If the Corps does not</p> <p>9 comply with its obligations to conduct analyses on</p> <p>10 all materials recovered from its excavations with</p> <p>11 respect to the site of the Jettie Creek site, between</p> <p>12 District Corps and the Advisory Council and with the</p> <p>13 District Corps and the Advisory Council, which</p> <p>14 was approved by the SHPO, would it not set a</p> <p>15 precedent that would allow the Corps to not</p> <p>16 follow work on prehistoric and historic sites across</p> <p>17 the State of Texas?"</p> <p>18 If the Corps can get away with not</p> <p>19 complying with its obligations to conduct analyses</p> <p>20 on all materials recovered from its excavations, then</p> <p>21 will it receive the same treatment? What does that say</p> <p>22 about the future of historic and prehistoric</p> <p>23 preservation of the already under-worked</p> <p>24 sites in the State of Texas?"</p> <p>25 ANSWER: I will submit to you that we</p>	<p>Page 75</p> <p>1 are not failing to comply with federal law and</p> <p>2 regulations, that we are pursuing it.</p> <p>3 We are pursuing the process of public</p> <p>4 consultation, and we are doing so in a way that is</p> <p>5 not only in compliance with the law, but also</p> <p>6 would not comply with federal law and regulations.</p> <p>7 I cannot see that in any way sets a precedent.</p> <p>8 The precedent that we are following is compliance</p> <p>9 with the law.</p> <p>10 QUESTION: "Since a large portion of</p> <p>11 the site remains unexcavated and is known to contain</p> <p>12 additional graves, what would it take to excavate</p> <p>13 and analyze them?"</p> <p>14 ANSWER: As I've already mentioned,</p> <p>15 the Corps has no need or intention to conduct any</p> <p>16 further work at the site.</p> <p>17 I understand that the</p> <p>18 National Historic Preservation Act didn't exist</p> <p>19 before the annual was conducted but considering</p> <p>20 that an avocational archaeologist knew about the</p> <p>21 site, why would extensive work done on</p> <p>22 VTRB them?"</p> <p>23 ANSWER: I have no idea why the site</p> <p>24 was not pursued in the '50s. I do know that when I</p> <p>25 came to Galveston, DuPont had begun working on the</p>
<p>Page 76</p> <p>1 Cherted to Victoria project in the early 1950s, I</p> <p>2 was the person who first recognized the anomaly</p> <p>3 and I was the person who first reported it for a</p> <p>4 number of years to local avocational archaeologists,</p> <p>5 none of them had formally recorded the site and so</p> <p>6 officially there was no record of it until I believe</p> <p>7 1941.</p> <p>8 QUESTION: "What was the first</p> <p>9 indication that you had found an archaeological</p> <p>10 site?"</p> <p>11 ANSWER: There was little flat</p> <p>12 shales and artifacts eroding from the bank of the</p> <p>13 channel. As we have indicated, the site was cut by</p> <p>14 initial construction of the channel and the</p> <p>15 system was in place. The site was disturbed by</p> <p>16 the initial canal construction.</p> <p>17 QUESTION: "We all originated at some</p> <p>18 point in our past as hunter, gatherers who worked</p> <p>19 by necessity closely with nature. With the advent of</p> <p>20 the day-to-day use of simple material to make our</p> <p>21 weapons, dress, ornamentation and interpretation of</p> <p>22 the world around us. Should not these remains be</p> <p>23 preserved as a part of our history? Why were they not</p> <p>24 preserved? This is a monument of time</p>	<p>Page 77</p> <p>1 encapsulated and partially preserved and it's world</p> <p>2 history, not just America.</p> <p>3 Should we learn what we can from this</p> <p>4 site and</p> <p>5 ANSWER: As we have discussed, we have</p> <p>6 identified all potential analyses that it makes</p> <p>7 sense to consider on this collection. We are</p> <p>8 doing public consultation now to reach our final</p> <p>9 decision on what will be done.</p> <p>10 QUESTION: "\$500,000 of our tax</p> <p>11 dollars have been spent on this. Shouldn't we</p> <p>12 follow through with this and not throw the tax money</p> <p>13 away?"</p> <p>14 ANSWER: As I have already stated, we</p> <p>15 will produce a technical report of findings on</p> <p>16 the site. We will also produce a public report. All</p> <p>17 all of the information that we have already gained</p> <p>18 from the site as being lost or throwing away tax</p> <p>19 money.</p> <p>20 QUESTION: "Since no one can say with</p> <p>21 surety just who these people were, whether Native</p> <p>22 Americans or European, with the unusual artifacts</p> <p>23 found, the site remains to be published, don't you</p>

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<p>Page 72</p> <p>1 file of the collection?"</p> <p>2 ANSWER: DuPont owns the land that the</p> <p>3 site is located on. It is not a public site and the</p> <p>4 disposition of that collection is ultimately</p> <p>5 their decision.</p> <p>6 QUESTION: "At the recent court action</p> <p>7 against the Corps, did the Corps agree to</p> <p>8 sign a Programmatic Agreement and the research</p> <p>9 design developed under that agreement that called</p> <p>10 for the site to be excavated?"</p> <p>11 ANSWER: In the meeting with the</p> <p>12 tribes, we -- we presented all possible analyses</p> <p>13 that could be appropriately pursued with that</p> <p>14 site being excavated. We presented all possible</p> <p>15 analyses that could be done. We presented all</p> <p>16 analyses that could be done. We presented all</p> <p>17 analyses that could be done. We presented all</p> <p>18 analyses that could be done. We presented all</p> <p>19 analyses that could be done. We presented all</p> <p>20 analyses that could be done. We presented all</p> <p>21 analyses that could be done. We presented all</p> <p>22 analyses that could be done. We presented all</p> <p>23 analyses that could be done. We presented all</p> <p>24 analyses that could be done. We presented all</p> <p>25 analyses that could be done. We presented all</p>	<p>Page 73</p> <p>1 and because who have a vested interest in protecting</p> <p>2 the site informed early on? Was it not the Corps'</p> <p>3 obligation under 26CFR460 to identify consulting</p> <p>4 parties up front and not after the fact?</p> <p>5 ANSWER: During excavation, the Corps</p> <p>6 and DuPont were involved in ensuring the security of</p> <p>7 the site and now since excavation has ceased, DuPont</p> <p>8 has the site and now since excavation has ceased, DuPont</p> <p>9 has the site and now since excavation has ceased, DuPont</p> <p>10 has the site and now since excavation has ceased, DuPont</p> <p>11 has the site and now since excavation has ceased, DuPont</p> <p>12 has the site and now since excavation has ceased, DuPont</p> <p>13 has the site and now since excavation has ceased, DuPont</p> <p>14 has the site and now since excavation has ceased, DuPont</p> <p>15 has the site and now since excavation has ceased, DuPont</p> <p>16 has the site and now since excavation has ceased, DuPont</p> <p>17 has the site and now since excavation has ceased, DuPont</p> <p>18 has the site and now since excavation has ceased, DuPont</p> <p>19 has the site and now since excavation has ceased, DuPont</p> <p>20 has the site and now since excavation has ceased, DuPont</p> <p>21 has the site and now since excavation has ceased, DuPont</p> <p>22 has the site and now since excavation has ceased, DuPont</p> <p>23 has the site and now since excavation has ceased, DuPont</p> <p>24 has the site and now since excavation has ceased, DuPont</p> <p>25 has the site and now since excavation has ceased, DuPont</p>
<p>Page 70</p> <p>1 level, why were Native Americans, the broad</p> <p>2 archaeological public, whose responsibility is in</p> <p>3 protecting sites, and the general public not</p> <p>4 involved in the decision after the excavations of</p> <p>5 the remains took place?"</p> <p>6 ANSWER: We've already discussed why</p> <p>7 there was not Native American consultation or</p> <p>8 involvement.</p> <p>9 At the time of excavation and</p> <p>10 immediately following it, realizing the significance</p> <p>11 of the site, I was very much concerned with the</p> <p>12 public at the site. She security was a critical</p> <p>13 issue to both the Corps and DuPont, and we</p> <p>14 deliberately did not pursue any publicity about the</p> <p>15 site because of the security concerns.</p> <p>16 QUESTION: "If this site and the</p> <p>17 remains are one of the oldest in North America, do</p> <p>18 they, therefore, predate any possible tribal</p> <p>19 identity relative to tribal groups as they exist</p> <p>20 today?"</p> <p>21 ANSWER: That is a possibility but as</p> <p>22 the -- the point has been made, we are not pursuing</p> <p>23 this site under NAGPRA. The continuation of the</p> <p>24 site under NAGPRA, determination of affiliation is</p>	<p>Page 71</p> <p>1 critical. Under Section 105, there is not a</p> <p>2 requirement to demonstrate affiliation, and any</p> <p>3 tribe can consult.</p> <p>4 QUESTION: "Why is the Corps of</p> <p>5 Engineers not conducting some</p> <p>6 analysis that was discussed this evening and we are</p> <p>7 working on the report. The issue, obviously, is</p> <p>8 what are we going to do with the remains? And</p> <p>9 how are we going to do that? Are we going to bring</p> <p>10 conducted on the human remains?"</p> <p>11 QUESTION: "If the Texas Historical</p> <p>12 Commission/SHPO cannot appoint consultants with</p> <p>13 the necessary expertise to conduct the analyses, will</p> <p>14 you be able to do that?"</p> <p>15 Follow through with contractual agreements, the</p> <p>16 Programmatic Agreement and data recovery plan?"</p> <p>17 ANSWER: Well, we first that we are</p> <p>18 not going to do that. We are not going to do that</p> <p>19 most of you are probably aware. If in the end we</p> <p>20 cannot reach concurrence with the SHPO, the -- the</p> <p>21 matter will be referred to the Advisory Council.</p> <p>22 We will be able to do that. We will be able to do that</p> <p>23 review and circulation of flag project.</p> <p>24 QUESTION: "What are the plans for</p> <p>25 these remains and why should DuPont demonstrate the</p>

HEARING

<p>Page 80</p> <p>1 think? This is not for us but for future 2 generation?" 3 ANSWER: We certainly are looking at 4 all possible. MS. MURPHY: Dr. Rickle is now going 5 to answer questions that are specifically about the 6 archaeology of this site. (Reading) 7 QUESTION: "How do you know bifacial 8 blades are ceremonial? What is the National 9 Register eligibility" - which is not a technical 10 question. How do the Native American community 11 the first one. "How do you know the bifacial blades 12 are ceremonial?" 13 ANSWER: Well, I think I'll just take 14 the first one. "How do you know the bifacial blades 15 are ceremonial?" 16 because I don't just take it, and then to have been 17 effectively used for common domestic tasks. 18 QUESTION: "Yesterday's Victoria, 19 Advocate reported that Jimmy Blinn of the Texas 20 possibility that the human remains discovered on the 21 knoll are European. Is there any evidence of this 22 so far discovered?"</p>	<p>Page 81</p> <p>1 there's going to be a sample of hearings like this 2 at this time. MS. MURPHY: When I addressed the 3 local officials after the tribal consultation 4 meeting and we discussed that possibility, we did 5 not discuss that possibility. I think that's quite 6 tonight, and this is the kind of meeting that we 7 were discussing, where, rather than just a workshop, 8 which was what was originally intended for this 9 meeting, we have an opportunity to have a public 10 with another formal public meeting. Whether or not we 11 have another formal public meeting, I don't know at 12 this time. 13 COLONEL WATKINSON: I'm on this 14 meeting, we have a lot of things that we will 15 be taken into consideration as I make this judgment. 16 those to us are thought or to our (Government office, 17 and they would like to thank everybody that 18 attended this evening. You shared a lot of good 19 ideas and a lot of things for us to take into 20 consideration. I would like the record to show that 21 the hearing is adjourned at 9:00 o'clock p.m. on the</p>
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HEARING

<p>Page 82</p> <p>1 26th of February, 2002. Thank you very much for 2 attending. 3 (At this time the hearing is concluded.)</p>	<p>Page 83</p> <p>1 THE STATE OF TEXAS : 2 COUNTY OF HARRIS : 3 I, Shiraz (Sheh) Boman, a Certified Shorthand 4 Reporter in and for the State of Texas, do hereby 5 certify that this hearing transcript is a true 6 and correct copy of the original recording of my ability 7 to hear and decipher the testimony. 8 Certified to on this, the 18th day of March, 9 2002. 10 11 Elizabeth Boman, CSR 12 Certification No. 975 13 Expiration Date: 12-31-03 14 1235 North Loop West Suite 510 15 Houston, Texas 77028-4704</p>
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22 (Pages 82 to 83)

21 (Pages 78 to 81)

will continue discussions with the tribes concerning analysis and disposition of the site collection.

**Local Government Briefing 2/13/02
Carolyn Murphy's Remarks to Local Officials on VT98
Consultation Meeting**

Yesterday a tribal consultation meeting was held by the Corps of Engineers to address the analysis, reporting, and disposition of the collection from prehistoric archeological site 41VT98. Site excavation was conducted by the Corps in conjunction with the widening and deepening of the Channel to Victoria. The site produced a large collection of artifacts dating from 1,000 to 12,000 years old. In addition, a large Early Archaic cemetery dating from 6,300 to 7,500 years old was also found, and approximately 80 burials were recovered. Our local sponsors are the Victoria and West Side Calhoun County Navigation Districts. The Port of Victoria is hosting this briefing today.

Participants in the consultation meeting included representatives of the Corps of Engineers including Colonel Leonard Waterworth, District Commander, DuPont, the Port of Victoria, the Texas Historical Commission, and the federally recognized Choctaw, Alabama Coushatta, and Comanche Tribes. DuPont graciously hosted the meeting.

The purpose of the meeting was primarily informational. The Corps provided information to the tribes on our work at the site, the historic and scientific significance of the site, and the wide range of analyses that could be conducted on site materials. The tribes very broadly discussed the cultural and spiritual significance of the site, and all expressed the desire to ultimately see the human remains reburied. All of the tribal representatives expressed their desire to return to their tribes to discuss our information on the site with their elders and spiritual leaders. We

This is but one part of the larger public participation process identified in 36CFR800, the federal regulation implementing the National Historic Preservation Act of 1966. In addition to consulting with federally recognized tribes, the Corps has also requested the Texas Archeological Society and Society for American Archaeology join us as consulting parties, to represent the interests and concerns of avocational and professional archeologists. A public meeting is scheduled in Victoria for February 26th at Victoria College. From 5-7pm an open house will be held where the public can view posters of work at the site, and discuss their concerns directly with Corps representatives. Archeologists with Coastal Environments, Inc., our contractor, will also be available to answer questions on the site excavation. At 7pm there will be a formal presentation on site excavation by Coastal Environments, followed by a Question and Answer session where questions submitted in writing by the public will be answered.

No decisions will be made by the Corps until this process of consultation and public participation is complete. All voices will be heard and all positions will be considered. A decision in the public interest will be made that takes into consideration the scientific, historical, cultural, and spiritual significance of this remarkable site. Additional information can be found at Galveston District's website: <http://www.swg.usace.army.mil>.

At this time I will entertain questions concerning the tribal consultation meeting. I ask that questions concerning more general issues pertaining to the site be held for the public meeting on February 26th.

Donnita Soyo

From: "OFFICE OF ENVIRONMENTAL PROGRAMS" <oepp@da.net>
To: "Donnita Soyo" <dn@da.net>
Sent: Friday, April 19, 2002 9:58 AM
Subject: FW: minutes corrections

----- Original Message -----
From: "OFFICE OF ENVIRONMENTAL PROGRAMS"
To: Donnita.Soyos@da.net
Sent: Friday, April 19, 2002 9:58 AM
Subject: minutes corrections

Grantstaff
The attached is a copy of the minutes from the February 12, 2002 meeting in Wichita, Texas at the Dugout property. I did not include the
minutes from Chairman Wangen's request for the minutes and the Chairman Wangen said "the more editing," referring to the minutes and
minutes from Chairman Wangen was not correct. I would like to request the corrections, using the M. Thomas Club, Bend, Oregon, specifically
Thank you and if there is additional information relating to what I can be reached at this e-mail address or by phone at (503) 492-3374
THOMAS@DAVID.DIRECT

Donnita Soyo

From: "OFFICE OF ENVIRONMENTAL PROGRAMS" <oepp@da.net>
To: "Donnita Soyo" <dn@da.net>
Sent: Friday, April 26, 2002 9:54 AM
Subject: FW: minutes corrections

----- Original Message -----
From: "OFFICE OF ENVIRONMENTAL PROGRAMS"
To: Donnita.Soyos@da.net
Sent: Friday, April 26, 2002 9:45 AM
Subject: minutes corrections

I have not heard from any of the other participants regarding revisions to the minutes, so I have made the change you requested. See the
bottom of page 2 for a table and see if it reflects your revision and if not let me know in the document. If you find any other
issues, I will be glad to address them. Comments are provided in the minutes for your review.
Thank you for your help.
Jim

----- Original Message -----
From: "OFFICE OF ENVIRONMENTAL PROGRAMS" <oepp@da.net>
Sent: Friday, April 29, 2002 9:52 AM
Subject: minutes corrections

Good morning Jim,
The Chairman's Minutes is an extract of the minutes from the February 12, 2002 meeting in Wichita, Texas at the Dugout property. I did not expect that
it is the minutes and minutes removed from the board file, and had the response was repeated by additional minutes, immediately.
I am sorry for the inconvenience. I will be glad to address them. Comments are provided in the minutes for your review.
Thank you for your help.
Jim

Minutes
VY198 Tribal Consultation Conference
 February 12, 2002
 Victoria, Texas

Purpose

The primary purpose of this meeting was to begin formal consultation under the National Historic Preservation Act Section 106 process as it relates to archaeological investigations at Site 41V198. The Galveston District is working with DuPont on this issue because it is a federal undertaking on DuPont land that is affecting this Native American site.

Background

This site is located on the banks of the Victoria Barge Canal, a human-made navigation channel first constructed in the late 1800s to improve barge access to the Port of Victoria from the Gulf Intracoastal Canal. In the early 1980s the Galveston District began a series of cultural resource investigations in conjunction with a feasibility study of proposed navigation improvements for the barge canal. Galveston District personnel initially recorded the impacts of the survey of the overall project in 1982. This site is located on property owned by DuPont Corporation and used by Galveston District in accordance with the terms of a real estate easement conveying limited rights for activities related to construction and operation of the navigation channel.

In 1989 preliminary testing indicated that the site had a deep, intact midden suggestive of a long history of occupation. Archaeological testing to determine Native Presence eligibility began in the fall of 2000 in order to determine potential impacts to the site from channel widening and deepening in March 2001, numerous prehistoric burials were encountered in a block section unit at the site. The discovery was unanticipated, as no indication of an extensive prehistoric cemetery had been found in prior investigations of this site.

The state of Texas has no state law that protects unmarked graves, nor do they have regulations on consultation with tribes when Native American human remains are discovered on private property. The Galveston District notified the Texas State Historic Preservation Officer (SHPO) and DuPont personnel as soon as the remains were unearthed. The Galveston District and the Texas SHPO decided to limit the excavation to those units already opened and to remove burials from the open units in an effort to prevent further damage from erosion, exposure, and vandalism. Approximately 79 interments were removed. It has been determined that the Native American human remains date roughly between 2,500 and 7,000 years old. All human remains and associated artifacts are now in temporary storage in the office of Galveston District's archaeological contractor. At present analysis has been halted on all materials relating to this site. To protect the site and remaining interments, the excavated units were carefully backfilled and DuPont erected a fence around the site's perimeter.

Since the site is located on property owned by DuPont, they have the ultimate responsibility for all remains and artifacts removed from the site. DuPont recognizes the inherent religious and cultural significance these remains hold for Native Americans, thus they are meeting with tribal representatives to discuss this matter so that an informed decision can be reached on the care of all items removed from this site. If it is decided to rebury all items removed from the site, DuPont has indicated that the items can be replaced at this site.

The Galveston District is currently faced with many conflicting interests on the extent of analysis that should take place on the remains and other artifacts removed from this site. It must be remembered that (1) this site is located on property that is privately owned, (2) the Native American Graves Protection and Repatriation Act does not apply, and (3) there are no state laws that protect unmarked graves in the state of Texas. Because of this, the consultation process will follow 36 CFR 800. What this means is that all interested parties will be heard. At the conclusion of this process the Galveston District will evaluate all the concerns of the general public, Native American tribes, and the Texas SHPO recommendations on further analysis of the remains. The decision on the level and extent of analysis will be made in consultation with the Galveston District. The Galveston District decisions are implemented, and the final disposition of the collection will be determined in consultation with DuPont, the owner. The Galveston District is fully aware of the scientific significance of this site but at the same time is also fully aware of the concerns of Native Americans as to how the remains are treated and analyzed. Because of the site's significance every attempt will be made to avoid future impacts to the site from Corps construction, operation, and maintenance of the channel.

On February 12-13, 2002, the DuPont Corporation, Galveston District, and the Texas SHPO met with Tribal representatives to present all information that was available on the site. A future meeting will be held with the Galveston District, DuPont representatives, and Tribal representatives to further discuss the concerns of the Native American tribes. At the same time the Galveston District will have a public meeting and meetings with consulting parties, which represent the scientific community to obtain their comments on this matter. At this time, no decision has been made as to whether any additional analysis will be performed.

12 Feb 2002

Consultation meeting

Location:

DuPont Nylon Victoria Plant, ...
 Employee Clubhouses, Victoria, Texas

Attendees:

Tribal Representatives

Mr. Olin Williams
 Ms. Debbie Thomas
 Ms. Beryl Battles
 Mr. Walter Celestine
 Chairman Johnny Wauquias
 Mr. Jimmy Arterberry
 Ms. Annette Asheketa

Galveston District Staff

COL Leonard D. Waterworth
 Ms. Carolyn E. Murphy
 Ms. Janelle S. Stokes
 Mr. Enrique Villagomez
 Ms. Phyllis A. Bledsoe
 Ms. Marilyn Urbit

SL Louis District Staff

Ms. Roberta L. Hayworth

DuPont Representatives

Dr. Anita Sanchez
 Mr. Bruce Chaffin
 Mr. Hight Chaffin
 Mr. Bob Minsk
 Ms. Amy Hodges

Coastal Environments, Inc.

Dr. David B. Kelly

Choctaw Nation of Oklahoma
 Tribal Historic Preservation Officer
 Alabama-Coosata Tribe of Texas
 Historic Preservation Office
 Alabama-Coosata Tribe of Texas
 Cultural Resources Coordinator
 Alabama-Coosata Tribe of Texas
 Cultural Resources Vice Chair
 Comanche Tribe
 Tribal Chairman/CEO
 Comanche Tribe
 Environmental Program Director
 Otoe-Missouria (attended with the
 Comanche tribal representatives)

District Commander
 Chief Environmental Section
 Native American Coordinator
 Project Manager
 Chief, Public Affairs
 Public Affairs Specialist

Native American Coordinator

Native American Consultant
 Plant Manager
 Senior Environmental Consultant
 Manager-Safety, Health, Environmental/
 Business Services
 Gulf Coast Public Affairs

Director, Cultural Resources Division

Victoria County Navigation District

Mr. Howard W. Hawthorne Executive Director

State of Texas

State Historic Preservation Officer
 Deputy State Historic Preservation Officer
 Assistant Director, State Historical Review
 Texas Historical Commission
 State and Federal Reviewer, Texas
 Historical Commission
 Victoria County Judge

Delay in start of meeting

The start of the meeting was delayed by 45 minutes because of a conversation with a group of non-federally recognized tribal members that wanted to attend the meeting. Mr. Ray Hernandez, Cultural Preservation Officer for the Tam Piliam Coahuiltecan Nation of Comfort, Texas, arrived and wanted to attend the meeting. The Galveston District was aware that the Tam Piliam Nation had a resolution from the Wichita Tribe. SL Louis District personnel had tried several times to contact the Wichita Tribe before this meeting to discuss this issue but phone calls were never returned. Because of the lack of understanding as to what role the Wichita Tribe wanted the Tam Piliam Nation to take at this meeting, the tribe had been informed before the meeting that they would not be allowed to attend.

Mr. Hernandez was once again informed that the Tam Piliam Nation had not been invited to this meeting because of their lack of federal recognition. Mr. Hernandez was told that a meeting could be set up between tribal members and the Commander of the Galveston District at a later date. Galveston District personnel explained that since the Tam Piliam Coahuiltecan Nation is not federally recognized the Galveston District cannot consult with them as part of the general public and they would be welcome to attend all public meetings.

Mr. Hernandez presented a tribal resolution written by the Wichita Tribe stating that the Tam Piliam Nation had the Wichita support to attend the meeting and to represent their interest. After Galveston personnel looked at the document they determined that this was a resolution written for the Tam Piliam Nation to be representatives for a federal project in another area of Texas. Mr. Hernandez was quite upset that they were not allowed to attend the meeting and asked COL Waterworth to call the tribal chairman of the Wichita Tribe to clear up this problem once and for all. The Colonel stated that this was not the time and place for such a phone call and assured Mr. Hernandez that as soon as he returned to his office later that week he would determine when he could meet with the tribe in his office. Mr. Hernandez agreed and departed.

miles of shallow-draft channels and 240 miles of deep draft channels, justifies its title as "Leader in Coastal Navigation."

The Galveston District recognizes the important and valuable natural resources along the Texas coast. The Gulf Intracoastal Waterway crosses six major bays, seven natural wildlife refuges, a national seashore, three coastal preserves, and numerous state parks. The balancing of these sometimes competing objectives is the greatest challenge facing the Galveston District.

The District is home to 28 ports handling 385 million tons of commerce annually. Houston, Corpus Christi, Texas City, Port Arthur and Beaumont are listed in the top 25 U.S. ports. The Galveston District's biggest navigation project is the Houston and Galveston Ship Channel Project, which will deepen both channels to 45 feet and widen the Houston Ship channel to 530 feet. This project should be completed in 2007.

The Galveston District handles about 2,000 regulator actions and nearly 1,000 permits annually. This includes the administration of the federal regulatory program, which covers work or structures in navigable waters and controls discharges of dredged or fill materials into coastal and inland waters and wetlands.

The Galveston District stands ready to help when disasters occur. Following the lead of Federal Emergency Management Agency, the District and the resources of the Corps are there to help with emergency management agencies in the areas of emergency contracting, preparedness, and mitigation for flood and hurricane disasters.

After the presentation participants visited the site.

Dr. David Kelly, Coastal Environments Inc.

Upon return from the site Dr. David Kelly, Coastal Environments Inc, presented the following information. (Dr. Kelly's complete presentation can be found in the notebooks, below is a summary of his presentation).

Dr. Kelly began his presentation by talking about the site, and where it is located, and the time depth of the site. He then discussed the fieldwork, how it was conducted, and some of the most important information that was recovered from the excavations on the knoll. The deposits in this area occurred in three distinct strata or zones. The uppermost, Zone 1, was a grayish brown soil that formed on the site after the Native American occupations. Zone 2, a black silty midden or refuse deposit about 80-cm thick, contained numerous artifacts, including stone dart and arrow points and other tools, debris from manufacturing tools, pottery fragments, animal bones, and shell. A number of hearth features, consisting of concentrations of burned clay and stone were also present. Based on the ages of the projectile points and ceramics, it has been estimated that this zone represents intermittent occupation from about 8000 to 5000 years ago

The Comanche Tribe brought a video camera with the expectations of taping the meeting. The Comanche Tribe explained that they record all meetings on videotape. Galveston District and DuPont personnel expressed some reluctance to allow the taping, saying it might inhibit free discussion, but agreed to ask all present if anyone objected to taping. Several participants did object, and so the Comanche graciously refrained from taping.

Opening

Chairman/CEO Johnny Wauqua, Comanche Tribe, began the meeting with a blessing. COL Leonard D. Waterworth, District Commander, welcomed everyone and asked that everyone around the table introduce themselves.

DuPont welcome

Mr. Bruce Chim, DuPont Plant Manager, welcomed the tribes and explained the role of DuPont. DuPont's role is to listen and understand what the tribes have to say and then make an informed decision as to how the collection will be handled, studied, returned, or reburied. DuPont has been a company for nearly two hundred years, and one of their objectives is the protection of the land they own, as well as respect for all cultures, and viewpoints. DuPont is serious about working with the tribes to reach an applicable solution for items removed from this site.

District Mission

COL Waterworth discussed the District and its mission.

The Galveston District performs its Civil Works mission throughout the Texas Gulf coast, contributing to the area's metropolitan and rural life, a congenial mixture of industry and natural environment abundant wildlife, and coastal attractions. Galveston District was established in 1880 and was the first Engineer District in Texas. Present day boundaries cover 47 counties, 50,000 square miles, stretching approximately one hundred miles inland from the Gulf of Mexico. The district encompasses about four hundred miles along the coast from Louisiana to the Texas-Mexico border.

The District headquarters is located in the Jadin building on the east end of Galveston Island. Engineers, biologists, hydrologists, economists, computer experts, secretaries, boat operators, surveyors, and archaeologists unite to form Team Galveston and strive to meet and maintain the Corps vision and to expand its "One door to the Corps" policy.

In 1949 the District completed the Gulf Intracoastal Waterway, which opened up commerce from Mexico to Florida and linked Texas with the nation's inland waterway systems. The Galveston District has within its boundaries 1,000 miles of the 12,000 miles of navigable channels supported by the Corps of Engineers--its approximately 760-

area was excavated, and many more remains are undoubtedly present and should be preserved and protected in place.

The quantity and variety of artifacts associated with the Early Archaic burials reflect an impressive level of aesthetic and technical development in material culture on the western Gulf coastal plain by 7000 years ago. These materials appear to represent a previously unknown early culture pattern for this area. The presence of lanceolate dart points similar to late Paleo-Indian forms suggests a continuity in material cultural traditions and technology, while the ground-stone plummets and banner stones and cherts imported from central Texas reflect far-ranging trade connections. Ornaments of shell indicate a concern for personal adornment and show that these early people were already exploiting the resources of the emergent Gulf shoreline. These items, the finely fashioned and labor-intensive quartzite "sinkers" and the large blades, all suggest an emphasis on ideologically important (as opposed to strictly functional) objects. Caches of stone raw material and the placement of tool kits with the deceased suggest a concern for provisioning individuals for an afterlife. It may be possible to correlate the kinds of burial artifacts with the age and sex of individuals, an unprecedented opportunity for exploring social roles/status in such an early population.

Tribal Comments

Tribal representatives wanted to know where the remains were and if any further analysis was taking place.

The tribes were informed that all human remains and associated funerary objects were carefully locked and all analysis and inventory of these items has been halted. Tribal representatives will be informed as to what kind of an inventory and analysis will take place before it happens. No decision had been made by the Galveston District as to what will or will not be done when it comes to analysis of the remains and funerary objects.

LUNCH

Afternoon Discussion

Ms. Carolyn Murphy, Chief of the Environmental Branch, Galveston District, discussed the upcoming briefing for local officials. A briefing had been scheduled for the following day, and Ms. Murphy explained that herself and Mr. Villegomez, project manager, would be the only speakers at this briefing. The purpose of the briefing was to inform local officials about the current meeting to prevent further misinformation from being sent to local officials. Ms. Murphy also discussed the scheduled public meeting for February 26 at Victoria College. Ms. Murphy explained that this meeting will be open to everyone and a panel will answer questions, submitted in writing. No formal transcript will be recorded, but a summary of all questions and answers will be written. (Note: It was later decided to have the meeting formally recorded. A copy of the meeting transcript is provided.

8

At the base of Zone 2, or in the upper portion of Zone 3, five human burials were encountered. Two of the burials contained dart points and large white shell pendants of the Archaic period (about 7500 years ago). One of the burials was located in Zone 3 and the other four were located in Zone 2. The burials were located in a flexed sitting or hunched position. Radiocarbon dates obtained on samples of bone from four of these burials indicate that this occupation dates between 7500 and 6100 years ago. Based on the distribution of burials in the excavated units it is estimated that approximately 25-30 percent of the cemetery area has been recovered.

In summary Dr. Kelly stated that this site contains important information for interpreting the prehistory of the Central Texas coast region and for understanding larger issues of Early Archaic life in the south-central United States. Dr. Kelly discussed the following major research topics that could be addressed.

Regional cultural history

This site has produced one of the most complete records of human occupation of any archaeological site on the coastal prairies of Texas, representing some 10,000 to 12,000 years of cultural history. Identifiable periods include the Paleo-Indian, Early Archaic, Middle Archaic, Late Archaic, and Late Prehistoric. The vertical distributions of time-diagnostic dart points and other artifacts, particularly in the Knoll Top and West Slope areas, show that the cultural deposits are intact and contain discrete, identifiable components. All of this offers a unique opportunity for increasing our understanding of long-term cultural development and change on the western Gulf and coastal plain.

Environmental history and human ecology

Well-preserved and abundant animal bones from various deposits hold great potential for understanding the subsistence economies of the people who lived there and how those patterns may have changed in response to shifts in climate and environments. Elution of the many soil samples taken from midden strata may provide information on economically important plant resources. The pollen preservation found in nearby floodplain sediments is expected to provide the model of environmental change with which to interpret changes in human adaptation during the long history of occupation at this site.

Early Archaic Bioarchaeology

The Early Archaic cemetery discovered at this site contains one of the three largest samples of early human remains of this age from North America and represents some 8-10 percent of all known individuals of this age or older from the continent. These materials hold a unique potential for understanding early populations in terms of their health, diet, and biological affinity. The report (which can be found in your notebook) by Dr. Doran and his associates from Florida State University discussed in some detail the various types of analyses that could be conducted on the human remains and the information provided by each. Approximately 20-25 percent of the estimated cemetery

7

results of inquiries to the tribes in the early 1990s in which the District sent letters and made follow-up calls to the tribes regarding NAGPRA collection. Since no tribes expressed an interest in the District's collection of remains from that time, the District assumed that the tribes remained uninterested. The District has corrected this assumption and all tribes will be consulted on NAGPRA and Section 106 issues from this point forward.

Tribal comments

Several of the tribal representatives explained that many tribes had gotten off to a slow start setting up departments to deal with these issues. Many tribes had no staff to deal with the onslaught of requests for consultation, and most had to develop policies and procedures for consultation, repatriation, and burial. The tribes expressed an interest in having a memorandum of understanding written concerning NAGPRA and Section 106 issues. The tribes indicated that they would share existing MOUs with the Galveston District.

Several tribal representatives talked about how their oral history recounts that their tribe "came up" from the south or from the west, and went east into the southeastern United States before moving back west into Texas. This means they would have moved through the Texas coastal plain in their original migration to the southeast. Several of the tribes stated they were interested in the fact that some of the internments were in a seated position facing east, a custom of the Alabama-Coahuila tribe. The Alabama-Coahuila tribe would like any information that the Galveston District has on the orientation of specific burials.

The Galveston District will put this information together and send it to the tribes.

The Comanche representative asked if federal funds were used in the excavation of this site, and the answer was yes. All tribal representatives then expressed the opinion that NAGPRA had to apply. It was explained that NAGPRA did not apply because the site is located on private property and the easement the Galveston District has does not convey sufficient rights for the human remains and artifacts to be considered under federal ownership and control. In addition, Texas has no state law to protect unmarked graves on private property, so it appears that Section 106 of NHPA is the only applicable statute.

Mr. Lawrence Oaks, Texas State Historic Preservation Officer

Mr. Oaks gave an overview of the Texas Historical Commission's cultural resource programs and explained the agency's involvement in the Section 106 process. The Texas Historical Commission was formed about fifty years ago and its mission is to (1) identify historic properties, (2) save historic properties, and (3) determine how to preserve historic properties. Mr. Oaks explained that his involvement is that of an advisor in the overall process and that ultimately the federal agency is the decision maker, but only at the end of the process. Mr. Oaks went on to say that if the Galveston District's final decision conflicts with the recommendations of his office, then the disagreement would be

Tribal Comments

Several of the tribal representatives asked if they could have a summary of the briefing and the public meeting.

The Galveston District will provide the tribes with this information.

Section 106 compliance

Mr. Murphy summarized the Galveston District's Section 106 compliance activities at this site. The construction of the Victoria Barge Canal was completed in the 1950s and early 1960s prior to passage of the National Historic Preservation Act. Several sites were impacted during the construction of the channel, including this site. In the early 1980s the Galveston District began surveying and site testing the entire project area in order to identify historic properties and minimize impacts to the significant sites during the maintenance of the channel. When widening and deepening of the channel was proposed the Galveston District conducted more surveys and site testing to determine what would be impacted and investigate proposed locations for the dredged materials. In 1990, the Galveston District entered into a Programmatic Agreement with the Texas SHPO and the Advisory Council on Historic Preservation to cover the new construction and maintenance of the existing channel.

Costal Environments, under contract to the Galveston District, completed additional testing of this site from November 2000 to July 2001. Site testing was being conducted to determine the extent of the site and if deepening and widening of the channel would affect intact cultural deposits. The testing determined that this was a significant multicomponent prehistoric site dating from the Paleo-Indian through Late Prehistoric periods, approximately 12,000 through 1,000 years ago.

The portion of the site that would have been impacted by construction had already been disturbed and contained no intact deposits. Once it was determined that the areas of the site containing significant archaeological deposits and human remains would not be affected by the widening of the channel all excavation was suspended. The Galveston District met with the Texas SHPO to determine the future course of action. An agreement was reached that no new excavation units would be opened and all open units would be fully excavated, the remains removed to an off-site laboratory, and the site carefully back-filled.

During a meeting with the Texas SHPO, Galveston District personnel and DuPont personnel requested that tribal consultation be initiated. The Galveston District had not done this earlier in the process because they did not anticipate discovery of a prehistoric cemetery and because it had been determined that NAGPRA did not apply to this investigation. Furthermore, the District believed that no tribes were interested in consulting on its Section 5 collections or current projects. This belief was based on the

referred to the Advisory Council of Historic Preservation in Washington D.C. The Advisory Council would then review comments on the recommendations. If the Galveston District still decides not to follow the recommendations of the Advisory Council, then the Chief of Engineers will be required to write a letter to the Advisory Council stating that it was proceeding in the face of opposition from the Texas SHPO and the Advisory Council.

Mr. James Bruseeth, Deputy Texas State Historic Preservation Officer

Mr. Bruseeth gave a summary of his office's involvement in this site. Mr. Bruseeth discussed the Programmatic Agreement the Galveston District had signed and how this document established the process under which this site was addressed. This site was determined eligible for the National Register in 1997. The Galveston District later coordinated a data recovery plan with the Historic Preservation Office that was used to begin further work at the site in November 2009. Mr. Bruseeth described this site as having worldwide significance as it contains a nearly complete sequence of human occupation in one archeological deposit. Mr. Bruseeth said that the human remains should be reinterred as soon as possible, but since they have already been excavated the remains and artifacts should be analyzed so different theories could be tested. He went on to say that these remains and artifacts contain information that could be used to address fundamental questions about the early peopling of North America. Mr. Bruseeth stated that the Texas SHPO believes it is unfortunate that they were ever excavated, and it would have been better if the remains had been left undisturbed.

The Galveston District responded by stating once again that it was their responsibility to make the final decision on how to proceed with the analysis and disposition. The Galveston District is soliciting comments from all competing parties to all interested parties before they will make a decision as to how they will forward it to the Texas SHPO. Mr. Bruseeth stated that this was an issue that needed to be considered very carefully and discussed with other members of his tribe. There are many questions that might be answered by the analysis of this case, and the Choctaw will consider sending the Galveston District that information they would like to see addressed. If analysis takes place, what kinds of information they would like to see addressed.

Tribal comments

The Comanche tribal representative asked about the Programmatic Agreement and its reference to the Advisory Council on Historic Preservation's Policy Interpretation No. 89-1 "Treatment of Human Remains and Grave Goods." The Comanche representative wanted everyone to understand that this guidance did not limit consultation to "known descendants." This policy was not included in the notebook, so copies were made for everyone and handed out. The Galveston District and the Comanche tribal representative suggested that the meeting continue the following morning to talk about this guidance, in order to give everyone sufficient time to study the document.

The Texas SHPO disagreed, saying that they were not prepared to stay a second day and that the Galveston District could not meet with the tribes without a representative from

his office present. The tribes all disagreed, and the Alabama-Coushatta stated that the tribes have a nation-to-nation relationship with federal agencies, and tribes could talk to Galveston District any time they wished without any representation from their OAHs office. Diplomat representatives requested a break in order to look over Policy Interpretation No. 89-1. Everyone agreed to this.

Options for analysis

Ms. Stokes presented the possible options for analysis of the collection from the site. All of this information can be found at the last tab of the notebook. Ms. Stokes asked the tribes if they would support analysis of materials from the non-mortuary strata.

Tribal comments

The tribal representatives present concurred that all materials from this site should be considered mortuary, regardless of their distance in time or space from burials. This would mean that if the human remains and grave goods are reinterred, everything in the collections would also be reinterred. The tribes explained that the site in its entirety should be considered a mortuary site. This site could have been considered a sacred site and revisited often with objects being left nearby the burials to help the deceased on their journey to the afterlife. This is a custom that is still used today by many tribes.

Tribal representatives did not support any analysis of the human remains. The tribal representatives present stated that the current inventory would be sufficient and did not support a more detailed inventory. Ms. Stokes informed the tribes of the letter from Caddo Tribe, which supported analysis of the collection.

The Choctaw tribe stated that this site appears to be a special case, an unusual discovery that could shed light on tribal history. The Choctaw oral history described them coming from the west, and this site might answer that type of question. The Choctaw representative stated that this was an issue that needed to be considered very carefully and discussed with other members of his tribe. There are many questions that might be answered by the analysis of this case, and the Choctaw will consider sending the Galveston District that information they would like to see addressed. If analysis takes place, what kinds of information they would like to see addressed.

The Alabama-Coushatta stated that they would be interested in drawings of the artifacts but did not support a report that would show the remains or actual burial objects.

Mr. Chinn specifically requested to hear from Chairman Wauqua of the Comanche Tribe regarding further testing or analysis of the remains and materials removed from VT98. Chairman Wauqua said he did not support further testing or analysis, and his comment was repeated by other attendees immediately.

Disposition

The Dupont Corporation has indicated that it would be willing to allow reinterment of site materials on its property near, or within, the site of origin.

Tribal comments

Tribal representatives asked DuPont about the security of the site. DuPont responded that the site had been securely fenced and is guarded by regular perimeter patrol of the entire plant property. Tribal representatives asked that if the remains were reinterred at the site would they would be able to visit. DuPont said that would be one of the items that would need to be worked out, but they did not see why they would not be allowed to visit.

The tribal representatives wished to go on record that they fully support this offer. The Choctaw representative reminded everyone that there were other tribes that need to be heard from before it is decided if the remains will be returned to the site of origin. Everyone agreed that all tribes would have a say in this matter. The Choctaw representative suggested that it would be appropriate to hold a ceremony in the laboratory housing the human remains. Spiritual leaders from interested tribes could be invited to perform a ceremony to ask for forgiveness for disturbing the graves and being in the reinterment process. The Choctaw representative said that they would be happy to host the reinterment ceremony with will be the joint effort of the Choctaw and the Dupont Corporation. A letter will be sent to all tribes to determine who would like to be involved and then final arrangements will be made.

Additional consulting parties

Ms. Stokes explained to the representatives that additional consulting parties had been designated because of their demonstrated interest in the scientific significance of the site. These consulting parties are the Society for American Archeology and the Texas Archeological Society. It was explained that numerous requests for consulting party status had been received, and the two listed above were chosen for their ability to represent a majority of those requesting such status. These other consulting parties will be consulted under the 36 CFR 800.2(c)(5), and their comments will be added to all comments received. (Note: a third organization, the Council of Texas Archeologists, was later added as a consulting party.)

Tribal comments

The Choctaw emphasized that the Galveston District, DuPont Corporation, and all interested tribes need to work together to reach a decision.

COL Watersworth reiterated that no decisions have been made and that no decision would be made until he is satisfied that he and his staff have sufficient information from all competing interests to make an informed decision.

COL Watersworth thanked everyone for attending and asked Chairman Johnny Waquua, Comanche Tribe, to end the meeting with a blessing.

Meeting concluded.

13 Feb 2002

Mr. Stokes and Mr. Hayworth drove to the laboratory in Corpus Christi to meet the Comanche Tribe. The Comanche arrived at approximately 11:00 and spent about one hour looking at the collection.

-2-

I hope you will accept this invitation to express your views directly to me and to representatives from Dupont. I wish to reiterate that with regard to site VT98, no decisions have been made or will be made, concerning the extent of further analysis, reporting, or disposition of the collection from this site until we have heard and considered your concerns, as well as those of all interested parties.

Sincerely,

Leonard D. Waterworth
Colonel, Corps of Engineers
District Engineer

Copies Furnished:

✓ Mr. Jimmy Aterberry, THPO
Comanche Indian Tribe
P.O. Box 908
Lawton, Oklahoma 73502

Mr. Bruce Chinn
Plant Manager
DuPont Nylon Victoria Plant
P.O. Box 2626
Victoria, Texas 77902

Mr. Hugh Charlton
Senior Environmental Consultant
DuPont Nylon Victoria Plant
P.O. Box 2626
Victoria, Texas 77901

Ms. Roberta Hayworth
Department of the Army
St. Louis District, Corps of Engineers
ATTN: CE3N/EB-Z (Hayworth)
1222 Spruce Street
St. Louis, Missouri 63103

March 12, 2002

Environmental Section

Johnny C. Wauqua, Chairman
Comanche Indian Tribe
P.O. Box 908
Lawton, Oklahoma 73502

Dear Chairman Wauqua:

The Galveston District, Corps of Engineers is requesting your presence at Tribal meetings to be held on May 8, 9, and 10, 2002. Each of the 3 days will have a separate, specific agenda:

May 8, 2002 - General Galveston District NHPA Section 106 and NAGPRA Consultation

On May 8, 2002, prior to the Section 106 consultation on VT98, we wish to take advantage of your presence to discuss Galveston District's NAGPRA collections and your Section 106 coordination interest in Galveston District projects in general throughout the District.

May 9, 2002 - 41VT98 Section 106 Consultation

On May 9, 2002, the Galveston District would like to provide another opportunity for Native American consultation regarding archeological site 41VT98. This meeting will be restricted to federally recognized tribal representatives, DuPont and Galveston District, and will continue the Section 106 consultation of site 41VT98 initiated in the meeting on February 12, 2002, at the Dupont facility in Victoria, Texas.

May 10, 2002 - Ceremony for the Remains from Site 41VT98

On May 10, 2002, following the Section 106 consultation, the Galveston District will sponsor a trip to the laboratory in Corpus Christi, Texas. This visit is in response to requests received at the consultation meeting on February 12, 2002, where several tribes indicated an interest in performing a ceremony over the human remains from VT98.

Your tribe is invited to attend any or all of these meetings. Please contact Ms. Roberta Hayworth at 374/331-8833 or at Roberta.Hayworth @mva02.usace.army.mil by April 5, 2002, to let us know if the proposed dates for the conference are acceptable and if you are interested in making the trip to Corpus Christi.

Ms. Anita Sanchez, Ph.D.
470 Fountain Tree Lane
Boulder, Colorado 80304



**GALVESTON DISTRICT
NATIVE AMERICAN CONSULTATION CONFERENCE
MAY 8-9, 2002
DRAFT AGENDA**

Wednesday, May 8, 2002 - General Galveston District NHP-A Section 106, NAGPRA and Sacred Sites Consultation

- 9:00 Invocation
- 9:05-9:30 Welcome/Introductions
- 9:30-10:30 Galveston District - Description of Project Lands & Archeology Background
- 10:30-10:45 Break
- 10:45-12:00 Discussion of Section 5 Material
- 12:00 Lunch
- 1:30-2:00 NAGPRA Section 3/Open Discussion
- 2:00-2:30 Sacred Sites/Traditional Cultural Properties
- 2:30-2:45 Break
- 2:45-4:00 Section 106/Open Discussion
- 4:00 Meeting Adjourned

Thursday, May 9, 2002 - 411798 Section 106 Consultation

- 9:00 Invocation
- 9:05-???
- Discussion of treatment of V198 remains & future artifact analysis with Dupont Representatives and the Corps

APR 18 2002

Environmental Section

Mr. Johnny C. Mauqua, Chairman
Comanche Indian Tribe
P.O. Box 498
Lawton, Oklahoma 73502

Dear Chairman Mauqua:

The U. S. Army Corps of Engineers, Galveston District, requests your attendance at Section 106, NAGPRA, and Section 106, NAGPRA, on May 8-9, 2002, at the Galveston District office. This meeting will present an opportunity for Native American tribes potentially affiliated with Galveston District to meet and discuss important issues with Galveston District staff. The first day will be spent discussing Galveston District's National American Graves Protection and Repatriation Act issues, sacred sites and traditional cultural properties, and consultation under Section 106 of the National Historic Preservation Act. The second day will be devoted to continuing Section 106 consultation on the NAGPRA issues. All interested parties from site V198 Galveston District personnel and Dupont representatives will be the only ones present besides tribal members. Galveston District will also sponsor a trip to Corpus Christi on May 10, 2002, for those tribal members interested in performing a ceremony over the remains.

We invite your tribe to send one tribal council representative or other appointed representative to participate in this meeting. Travel expenses will be reimbursed for one representative. The tribe may send other representatives at its own expense.

Enclosed are a registration form to be completed and returned to the address listed, information on travel expenses, and a copy of the agenda. We ask that you contact Ms. Roberta L. Hayworth at (314) 331-8833 if you have questions about your travel arrangements or would like to have other items added to the agenda. We look forward to meeting and exchanging information with tribal representatives.

Sincerely,

Leonard D. Waterworth
Colonel, Corps of Engineers
District Engineer

Copy Furnished with Encls:
Mr. Jimmy Arterberry

Evidence May 10 Ceremony for the Remains from Site 411798

10:00-12:00 Tribal members wishing to participate in a ceremony for the remains will meet at the CEI laboratory in Corpus Christi, Texas



DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT CORPS OF ENGINEERS
ST. LOUIS, MISSOURI 63103-2833

OFFICE
ATTENTION

MAY 03 2002

Engineering Division
Curation and Archives
Analysis Branch

SUBJECT: Invitational travel Order for the Galveston
District Native American Consultation Conference

Mr. Jimmy Anterberry
Navajo Program Director
Comanche Tribe
P.O. Box 908
Lawton, Oklahoma 73502

Dear Mr. Anterberry:

You are requested to appear in Galveston, Texas, for the period of May 7-10, 2002, and in Corpus Christi, Texas, on the 11th and 12th of the same month. The Galveston and Corpus Christi, Texas, are to participate in the Native American Consultation Conference under the auspices of this invitational travel order number 20148083. You are authorized to proceed from your home in Lawton, Oklahoma, by commercial air to Houston, Texas. You are also authorized to rent a vehicle and transport it to Galveston, Texas, and to proceed from Galveston to Corpus Christi.

Prepaid airline tickets will be provided for you. You will be entitled to a per diem allowance to cover your expenses (e.g., gas, parking) the amount you receive will be computed on the basis of the daily amount you pay for the above expenses, not to exceed the maximum amount prescribed in the Department of Defense's Joint Travel Regulations for the locality concerned.

If you have any questions regarding this travel order, please contact Ms. Roberta L. Hayworth at (314) 331-8833.

Sincerely,

Roberta L. Hayworth
District Engineer

Printed on Recycled Paper

Copy Furnished with enclosures:

Mr. Bruce Chinn
Plant Manager
DuPont Nylon Victoria Plant
P.O. Box 2626
Victoria, Texas 77902

Mr. Hugh Charlton
Senior Environmental Consultant
DuPont Nylon Victoria Plant
P.O. Box 2626
Victoria, Texas 77901

Ms. Roberta Hayworth
Department of the Army
St. Louis District, Corps of Engineers
ATTN: CEMWS-ED-2. (Hayworth)
1222 Spruce Street
St. Louis, Missouri 63103

Ms. Anita Sanchez, Ph.D.
470 Fountain Tree Lane
Boulder, Colorado 80304

CESWG-EP-PR Ms. Stokes
CESWG-EP-J Mr. Villagomez

May 3, 2002

Environmental Section

Mr. Johnny C. Wauqua, Chairman
Comanche Indian Tribe
P.O. Box 908
Lawton, Oklahoma 73502

Dear Chairman Wauqua:

The U.S. Army Corps of Engineers, Galveston District, provides the enclosed draft proposal for the Buckeye Knoll site (41V198) for your review. We will discuss the draft proposal during the meeting on May 7 when we will be continuing our discussions on this site.

I wish to emphasize that this is a draft proposal for discussion. No decisions have been made on how to proceed with treatment of the remains and archeological resources from this site. We will discuss the draft proposal with the State Historic Preservation Officer, and the archeological consulting parties before a decision is reached.

I appreciate your continued interest in this project. If you have any questions, please contact Ms. Janelle Stokes at 409/766-3039 or by e-mail at Janelle.S.Stokes@swg02.usace.army.mil. If I may be of assistance in any way, please don't hesitate to give me a call at 409/766-3001.

Sincerely,

Leonard D. Waterworth
Colonel, Corps of Engineers
District Engineer

Copy Furnished with Encl:
Mr. Jimmy Riteberry

SAME LETTER SENT
TRIBAL REPRESENTATIVES

SAME LETTER SENT
TRIBAL CHAIRPERSON

Mr. Kevin P. Battise, Chairman Alabama-Coushatta Tribe of Texas Route 3, Box 640 Livingston, Texas 77351	Ms. Sara Miquez, President Mesquero Apache Tribe P.O. Box 22 Mescalero, New Mexico 88340	Ms. Debbie Thomas Historic Preservation Officer Alabama-Coushatta Tribe of Texas Rt. 3, Box 640 Livingston, Texas 77351	Mr. Jimmy Arterberry THPO Comanche Tribe P.O. Box 908 Lawton, Oklahoma 73502
Mr. Donald Patterson, President Tonkawa Tribe of Indians Oklahoma P.O. Box 70 Tonkawa, Oklahoma 74653	Ms. Rena Duncan Chokasaw Nation American Building, Ste 310 Ada, Oklahoma 74820	Ms. Rene Duncan Chokasaw Nation American Building, Ste 310 Ada, Oklahoma 74820	Ms. Dorine Steirn-McFadden THPO Mescalero Apache Tribe P.O. Box 22 Mescalero, New Mexico 88340
Mr. Gary McAdams, President Mickla and Mickla Tribes P.O. Box 729 Anadarko, Oklahoma 73005	Mr. Eddie L. Tullis, Chairman Creek 5811 Jack Spring Road Atmore, Alabama	Ms. Marie Guidry Social Services Program Coordinator Coushatta Tribe of Louisiana P.O. Box 967 Elton, Louisiana 70532	Mr. Anthony Street NAGPRA Coordinator Tonkawa Tribe P.O. Box 70 Tonkawa, Oklahoma 74653
Mr. Lovelan Poncho, Chairman Coushatta Indian Tribe P.O. Box 818 Elton, Louisiana 70532	Mr. Earl Yeahquo Chairman Kiowa Tribe of Oklahoma P.O. Box 369 Carnegie, Oklahoma 73015	Mr. Leland Thompson Cultural Consultant Coushatta Tribe of Louisiana P.O. Box 967 Elton, Louisiana 70532	Mr. Stratford Williams Vice President Wichita and Affiliated Tribes P.O. Box 729 Anadarko, Oklahoma 73005
Mr. LaRue Parker, Chairman Caddo Indian Tribe P.O. Box 487 Binger, Oklahoma 73009	Mr. Gregory E. Pyle, Chief Choctaw Nation of Oklahoma 10000 Highway 100 Durant, Oklahoma 74702	Mr. Bobby Gonzales NAGPRA Coordinator Caddo Indian Tribe of Oklahoma Binger, Oklahoma 73009	Mr. Bill Day THPO Posok Band of Creek 128 Olive Street Eineville, Louisiana 71360
Mr. Johnny C. Waugha, Chairman Comanche Indian Tribe P.O. Box 98 Lawton, Oklahoma 73502		Reverend George Daingkau Kiowa Tribe of Oklahoma NAGPRA Coordinator 118 South Stephens Hobart, OK 73651	

May 3, 2002

Galveston District, Corps of Engineers
Draft Proposal
The Buckeye Knoll Site (41VT98)



I. Introduction

Outlined below is a draft proposal for analysis of the Buckeye Knoll site that the Galveston District recommends be followed. It is decided that analysis will be performed. However, all consulting parties should understand that no decision has yet been reached. A final decision as to the type and level of analysis that will be recommended, if any, will be made at the conclusion of the consultation process. Should analysis be pursued, the Galveston District proposes to prepare a Native American prehistoric cultural context for the lower Guadalupe River region of the central Texas coastal plain. This proposal will identify significant questions pertaining to the Native American culture and archeology of the area that could be addressed through materials recovered from the Buckeye Knoll site, historical and ethnographic research, and limited comparative analysis. The purpose of this work would be to capture the unique scientific data presented to us through the Buckeye Knoll site, and use it to address research of value to Native Americans, the scientific community and the general public.

It is our intent to involve the consulting parties in the development of specific questions that could be pursued through this research. Preliminary discussions with Native Americans and interested archeological organizations were essential in the preparation of this draft proposal for completing study of the remains and archeological materials recovered from the Buckeye Knoll site. We want to emphasize that this is a draft proposal, and that we intend to seek additional input and comment from all consulting parties in reaching a final decision. In particular, we seek to receive an answer which are specifically relevant to their needs. Also, by the interested Native American Tribes. A final decision and subsequent detailed scopes of work will be developed in consultation with the Tribes, the archeological consulting parties and the State Historic Preservation Officer (SHPO). In the final proposal, the Corps will seek to balance the interests and values of all the consulting parties.

The proposed Native American prehistoric cultural context will consist of four parts - a historical and ethnographic study of Native American cultures expressing ties to the lower Guadalupe River region, an archeological study of excavated materials from the Buckeye Knoll site with limited comparative studies, a bioarcheological study of the human remains of the Buckeye Knoll Site with limited comparative studies, and a summary report integrating the results of the three technical studies into a Native

American prehistoric cultural context. This context may provide support for Native American efforts to document ties to the prehistoric archeological culture of the central Texas coastal plain. The report will also summarize the technical reports and facilitate the general public's access to study results.

The next section of this draft proposal contains an explanation of why analysis of the Buckeye Knoll site is recommended. A preliminary list of questions we believe study of the Buckeye Knoll Site will be able to answer is presented, followed by a description of each of the proposed studies. A discussion of the analyses that need to be conducted in order to answer the questions follows, along with an estimate of timing and duration of these studies and analyses. A proposed recommendation for final disposition of the remains and archeological materials is offered by the Corps prior to concluding remarks.

II. Why is Analysis Necessary?

The Corps is evaluating the need for these studies because of the extraordinary significance of the Buckeye Knoll site. If analysis is conducted, the Corps would ensure that any recommended studies are undertaken expeditiously and with the utmost respect to the human remains. The Corps has oversight of interested Native Americans would be sought to ensure respectful treatment.

The Buckeye Knoll site is unique in the archeological record of North America, and holds the potential for addressing major research topics of broad interest to the scientific community, Native American Tribes, and the general public. The site is singularly important in several ways. First, it is the earliest archaeological site in the scientific record ever found west of the Mississippi River and one of the three largest early cemeteries with preserved burials in all of North America. Second, the assemblage of undiagnosed early cultures found at the site has yielded the most complete sequence of stratified or layered cultural deposits yet found in southern Texas; a sequence estimated to represent some 10,000 years, almost the entire span of known regional prehistory.

Each of the unique aspects of the site provides possibilities for understanding early lifeways. The age of the early burials and their number (approximately 79 individuals recovered) offers an unprecedented opportunity to learn about the biological affinity, health, diet, disease, activity-related stress and/or trauma, life expectancy and demography of a very early North American population. Study of the Buckeye Knoll remains could set the base line data on these issues.

The associated mortuary artifacts, which are varied and reflect considerable craftsmanship, offer unique possibilities for learning about early technology, styles of workmanship in stone, shell and bone material, early trade networks, and the kinds and quantities of different materials placed with individuals of both sexes and varying ages.

Finally, the intact camp-debris or midden deposits are layered or stratified in such a way that the site provides an unusually complete record of the culture history of the region.

3. Were the Early Archaic people at Buckeye Knoll related to later people in this region?

Measurements on teeth and skulls from the Early Archaic burials at Buckeye Knoll, along with DNA information, can be compared with similar information on Late Archaic burials from the site, and with human remains from other Late Archaic sites in Texas. If they are not found to be related, this means that many different groups came to settle in this region over time. If a close relationship is found, this proves that one or a few groups stayed in the lower Guadalupe River area over thousands of years, with little outside influence.

4. Did men, women, and children have different roles in Early Archaic society?

People's daily lives and their roles in society are represented by the items buried with them. Of the 72 Early Archaic burials from Buckeye Knoll, 44 (61%) contained grave goods while the remaining 28 did not. Field notes suggest that burials included either tools or ornaments, but not both. Excavations of non-burial shapes will provide information on the age and sex of each burial, and DNA testing, determining the sex of bones that do not show it clearly, will also be possible. Only quality grave breakage. This information could show whether people had different roles in Early Archaic society related to their age and/or sex.

5. Was social status achieved during a person's lifetime, or was it based on descent?

Several burials from Buckeye Knoll include many items, and appear to be people who were very important in that Early Archaic society. If DNA tests and the shapes of skull bones show that those people were genetically related, this would mean that leadership was based on descent. If this information proves that those people were not related, then leadership apparently was based on skills and deeds during one's life.

6. Did the Early Archaic people at Buckeye Knoll trade with distant groups directly or indirectly?

Some items included with the burials are made with materials and styles that are not local to this part of Texas. The bangles may be from the southeastern United States, and the plummet is from northeast Texas or farther away. Some of the stone objects are made of flint and granite from central Texas. These non-local items must have been obtained through trade or carried over long distances. Identification of the source materials and manufacture of these items, combined with information on group relationships from bone shapes and DNA tests (see Question 2, above) could explain how early trade relationships worked.

from Paleo-Indian times, around 9,000 B.C. through the long Archaic period from about 7,000 B.C. to 700 A.D. and into the Late Prehistoric period, which dates to about 700 to 1600 A.D. No other single site in Texas or western North America contains this combination of important information.

III. Questions That Can Be Answered

The following list was developed primarily with input from the scientific and archaeological community. It is not intended to be complete. This list has the potential to answer questions of importance to different communities. At the request of the Corps in the consultation that follows, the Corps has identified questions the site may answer which are specifically relevant to Native Americans.

1. How old is the Buckeye Knoll cemetery and how long was it used?

Four radiocarbon dates of human bone collagen (unpurified) from Buckeye Knoll range from 5500 to 4300 B.C. The dates may be too young because recent work shows that purifying bone collagen yields times that are 200 to 3,000 years older than unpurified collagen dates. If additional dates of unpurified bone collagen show that the Buckeye Knoll cemetery is older than currently believed, this could place it at the end of the Paleo-Indian period and the beginning of the Early Archaic period, and would match the Angostura-like dates found in burials dating to around 7000 B.C. found with some burials.

The four dates place the cemetery in the Early Archaic period but do not prove how long it was used. The length of time during which people were buried provides information on group size. If most or all of the burials were made within a few hundred years, this means that the cemetery was used regularly by a fairly large group over many generations. If the burials are spread over 1,000 years or more, this means that smaller groups or families used the cemetery over many generations. More radiocarbon dates are needed to confidently place the cemetery in time, and to determine how long it was used.

2. How closely are the Early Archaic people at Buckeye Knoll related to other Early Archaic people in North America?

Measurements on teeth and skulls and DNA information from Buckeye Knoll can be compared with information from two other cemetery sites of this age in North America. If this shows that Texas people are closely related to other early groups, it would prove that people moved over broad areas during the Early Archaic period. If no close relationships are found, then different groups must have moved into each region at an earlier time, possibly during the Paleo-Indian period.

indicating a shift in the coastline related to changes in sea level. Identifications of animal bones and shellfish will show how diet at the site changed in response to climate changes, and the timing of changes in diet can be found by radiocarbon dating animal bones and shells. The season of harvest of fish and shellfish is recorded in their annual growth layers.

10. How did technology change over 10,000 years at Buckeye Knoll?

The stone, bone, shell and clay tools from Buckeye Knoll comprise information on development of technology from the Paleo-Indian period through the Late Prehistoric period. Forms and styles of tools tell about their purposes. Along with microscopic scratches and polish left by use, Protein or fat from materials that were processed are sometimes left on tools and pots, and can be identified through chemical analyses. The unexpectedly early use of pottery at the site (found 7,000 years ago) can be studied by examining how those pots were made and identifying the clays they were made from.

IV. Proposed Studies

The studies proposed here were developed by the Corps based upon input from all the consulting parties (state). We have attempted to balance concerns of the archaeological community and general public for the retrieval of significant scientific information with concerns expressed by Native Americans regarding the treatment of these ancient human remains, and the resulting use and dissemination of this information.

1. Historical and Ethnographic Studies

Historical and ethnographic studies would gather evidence of the possible cultural and historical association of Native American tribes or groups to the Buckeye Knoll site and the lower Guadalupe River region. The historical and ethnographic studies would be to identify and describe the Native American tribes and organizations that may have ties to the prehistoric archaeological sites and cultures of the lower Guadalupe River region, specifically and central Texas coastal plain, generally.

As part of this historical study, the Corps would request the assistance of Native American Tribes and organizations in the identification of specific questions the Tribes believe could be answered by analysis of the Buckeye Knoll site. The Corps would consult with appropriate Tribal representatives to determine their willingness to participate in this effort. Those Tribes willing to participate would be asked to identify specific questions they would like to see pursued during the site analysis.

These studies will involve a search of the published ethnographic and historical data, a limited search of archival and other primary data, consultation with appropriate Tribal representatives and other experts, and an evaluation and assessment of the ethnographic and historic database.

7. What food sources were used by the people who were buried at Buckeye Knoll, and how far did they travel to get those foods?

Human diet affects the chemical composition of our bones, which provide a long-term record of the types of food we eat. The relative amounts of stable carbon, nitrogen and other isotopes in the bones from burials at Buckeye Knoll show what part of their diet came from the animals and plants of prairies and river areas, and what part came from coastal foods like marine fish and shellfish. Soil samples from the burials may contain microscopic evidence of a person's diet.

When the early explorers first came to this region, they found people living in coastal and inland Texas. In the bone studies about the Early Archaic people buried at Buckeye Knoll on both coastal and prairie lands, this shows that people remained across broad areas at that time, and must have traveled into prairies and later date. If isotope studies show that their diet was based on inland resources, this shows that the inland and coastal territories are of great importance. The bone and marine shells included with the Buckeye Knoll burials show that these people had access to the coast, but if bone isotope studies show a land-based diet, they must have traveled for those items.

8. How healthy were the people who were buried at Buckeye Knoll?

The number of years that people live represents the overall health of a group. Bone measurements and shapes tell the age of the people who were buried at Buckeye Knoll; if many of them died at a young age the population was not healthy. Faint lines form in bones and teeth when growth slows due to stress and/or malnutrition, and preserve a long-term record of health. Severe, long-term diseases mark the bones, and certain diseases can be identified. The health of the people buried at Buckeye Knoll during the Early Archaic period can be evaluated, and linked with DNA analyses to see whether there is a genetic basis for health. This information can then be compared with the health of Early Archaic groups in the two other continents of this age in the United States, and with the health of later groups in the region, including persons buried at Buckeye Knoll in the Late Archaic period.

9. How did diet change over 10,000 years at Buckeye Knoll, and how were those changes related to climate and/or season?

Materials from different levels of the Buckeye Knoll site represent around 10,000 years of human occupation, containing the most complete record from the Texas coastal plain and one of the most complete records from the west Gulf coastal plain. This sequence can be used to study changes over time in trade and social patterns. A detailed history of climate change has been obtained from layered floodplain deposits near the site, and is recorded by the land snails that lived at the site.

The many animal bones and shells found at Buckeye Knoll tell about foods eaten at the site over time. Field observations suggest that coastal clams and oysters may have been important in the early part of the Late Archaic period (2,000 to 1,000 B.C.); possibly

V. Proposed Analyses and Documentation

The analyses of materials from Buckeye Knoll would be conducted in accordance with three main principles:

1. *Analyses would only be conducted if they are likely to yield important information.*
The research questions (above) explain the important information that would be obtained by each type of analysis.
2. *Sampling of human skeletal material for destructive analyses would be the minimum required to obtain statistically valid results.* All types of isotopes, DNA, and AMS-radiocarbon analyses can be done on a single sample of material. A single tooth (e.g., third molar) is suitable for all of these. Determination of the number of samples for destructive analyses would be established in phases. A minimum number of samples, described below, would initially be collected and analyzed. If the analysis yields tightly clustered data then additional tests would not be necessary. If the results are inconclusive, indicated by additional sampling, they would be evaluated by the Corps in consultation with the STPO, their tribes, and the other consulting parties. Enough samples should be analyzed to provide or disprove competing theories.

3. *Human remains should be handled with great care and respect.* The burials are now in individual containers and stored in a separate area of the laboratory. The bones would only be cleared if it is necessary to clean them, and any cleaning would be limited to human bone. Soil that is necessary would be kept with the burial container and not be used as AMS dating, stable isotope analyses, and DNA sequencing. The minimum amount of material needed to get accurate results (Native American representatives would be invited to observe all aspects of the treatment and study of the human remains).

The following analyses of the Buckeye Knoll materials are expected to yield important information to answer the research questions stated above. The number of samples and sample sizes recommended for each analysis would provide enough information to support scientifically sound conclusions. Only three of the analyses described below involve destructive techniques, and samples required for the destructive analyses (AMS-radiocarbon dating, DNA extraction, and stable isotopes) are extremely small. All these tests can be run on one single sample of bone or a single tooth.

All of the other analyses discussed below require no destructive techniques. These non-destructive analyses are the metric and non-metric analyses of human bone, X-ray and CAT scan of human bone; the analysis of sediments from burials; photodocumentation of human remains and associated artifacts; the identification of animal bone, shellfish and land snail remains; animal seasonality analysis; the identification of charred plants; stone remains; radiocarbon dating of animal bones, shells, and plant remains; ceramic analysis; stone tool use-wear analysis; and the analysis of organic residues on tools and pot fragments.

2. Archaeology

Excavation of the Buckeye Knoll site was conducted between November 2001 and July 2002 by Coastal Environmental, Inc. (CEI) under contract to the Calveston District, Corps of Engineers. A total of 39 two by two meter excavation units and 31 1/2 meter trenches investigated a five acre area on the west side of the Calveston Channel. The excavations resulted in the recovery of approximately 79 human burials, associated grave goods, and other archaeological materials from midden contexts, and samples for geoarchaeological and paleoenvironmental reconstruction. All of the human and archaeological materials are presently in the CEI laboratory in Corpus Christi, Texas.

The scientific goal in recovering the archaeological materials from the Buckeye Knoll site would be to maximize the recovery of high quality information, while treating human remains and associated artifacts with respect. This study would focus on answering the questions discussed above within the larger context of regional culture history, human ecology, and environmental reconstruction. Analyses required to address these topics include: artifact analysis, faunal and floral analyses, seasonality of faunal remains, paleoenvironmental and geoarchaeological studies of sediments and pollen, use-wear studies on stone tools, and testing studies on artifacts.

3. Bioarchaeology

Bioarchaeological studies of the human remains from the Buckeye Knoll site would answer many of the questions listed above. The primary importance of such information lies in understanding fundamental aspects of the human past, such as who ancient people were in terms of physical and genetic characteristics, and how they lived and how they died. No other kind of material gets us as close to the people of the past, and none informs us as directly about their lives.

Perhaps most importantly, study of the genetically encoded aspects of skeletal traits through specific measurements of the form of crania and teeth, provides insight into population differences and other groups, both in geographic space and through time. One of the most powerful methods to other groups, both in geographic space and through time, is DNA analysis, which is the most rigorous tool for establishing genetic relationships among past populations. Through understanding these factors, it is possible to learn about ancient migrations as well as identify instances where populations may have remained in a region over many centuries or millennia. Such questions are fundamental because they go to the heart of the questions of the ancestors, lifeways and long-term relationships between peoples in different regions and in different eras.

The kinds of analyses the Corps proposes to use in pursuit of answers to these questions include: measurements and observations of the skeleton, microscopic examination of the bones, radiocarbon dating, stable isotope analysis, DNA analysis, x-ray and CAT scans, and photodocumentation.

be studied by looking at the pieces under low magnification, to see the temper, surface finish, decoration, and marks from manufacturing and firing.

Stone Tool Use Wear Analysis

Observation of the working surfaces of stone tools under high magnification shows scratches, polish, and other evidence of how the tools were used. Because the forms of many of the stone tools from Buckeye Knoll do not tell how the tools were used, at least 50 tools would be examined by an expert who can interpret use-wear by comparing them with tools used for known tasks.

Analysis of Organic Residues on Tools and Pot Fragments

Organic proteins and fats are sometimes preserved on the surfaces of tools and clay objects, and may be identified for particular animal and plant species, showing what the tool was used for. This procedure involves chemical analysis of matter removed from the surfaces of tools or pots.

The use of some tools from Buckeye Knoll is unknown, including plummetts and sinkers found with burials. Stone gun flint was found with Early Archaic burials may have blood on them, proving that they caused the death of those people. Also, clusters of fine clay nodules found in spots outside the cemetery at Buckeye Knoll may be cooking hearths. The porous clay could contain plant and/or animal proteins or fats that would show what kinds of foods were prepared. Thirty tools would be tested for residue analysis, 15 from the Early Archaic cemetery and 15 from areas outside the cemetery. Also 15 fired clay nodules from areas outside the cemetery would be analyzed for organic residues.

Other Analyses

Other information that would be collected from items from Buckeye Knoll includes measurements, weights, and counts on bone, shell and clay objects. The stone chips from making stone tools would be examined to identify the rock source and stage of manufacture. Stone objects from the Early Archaic cemetery would be examined under a microscope to identify the rock sources. Ultraviolet light would be used to see what percentage of 50 selected flaked stone tools may be made of flint from central Texas (they would look yellow).

VI. Timing and Duration of Studies

The estimated duration of the study of human and cultural remains from 41V193 identified above is about 2 years. These studies would be conducted concurrently with any historical and ethnographic studies. The purpose of these studies would be to explore the similarities and differences between the early people of the central Texas Coast and current Native American cultures.

climate at the site. One sample from each level in the major excavation areas could be studied, for a total of approximately 45 samples.

Animal Seasonality

The season when fish and some shellfish were caught and killed can be determined by comparing the thickness of the most recent growth layer to a complete annual growth layer. The season when a shellfish or fish was eaten not determined until the season when a camp was occupied. Fish seasonality requires microscopic examination of sections cut through otoliths (protein and calcium carbonate) in fish shells. Because only 25 or so otoliths were found at Buckeye Knoll, they should be analyzed for seasonality. The season of occupation could be estimated by looking at annual growth patterns on the hinge of shells. At least 200 oyster shells from Buckeye Knoll could be analyzed for seasonality.

Charred Plant Remains and Fragments

Samples of soil collected from test pits in the cemetery may contain charred plant remains. The soil would be processed with water to float any lightweight plant parts to the surface so they can be studied. If plant remains are found, they would be identified by an expert through comparison with known plant samples. Plant remains tell about the part of the diet that is not represented by animal bones and shells.

Radiocarbon Dating of Animal Bones, Shells, and Charcoal

Samples of animal bones and shells collected from areas outside the cemetery could be radiocarbon dated to determine the age of the layers making up the 10,000 history of Buckeye Knoll. Root and animal disturbance of the sandy site sediments likely displaced many smaller items. This may compromise the use of these materials to accurately date site layers. However, errors caused by this movement may be overcome if a sufficient number of dates are obtained.

Pottery Analysis

Buckeye pottery was found in the Late Archaic and Late Prehistoric layers at Buckeye Knoll. Some of the pottery was found at depths suggesting that it is 2,000 years old. The Late Prehistoric pottery found at the site is more typical of other pottery from the region which dates to around A.D. 1900 or later.

The clay source for the early pottery at Buckeye Knoll could be identified through neutron activation analysis (a chemical analysis of a very small sample) of pottery samples and potential clay sources. The hard materials included in the clay (temper) could be identified by cutting a thin slice through the pottery fragment and viewing it through a microscope under special light. These analyses would tell whether the early pottery is from the region or was imported. All of the pottery from Buckeye Knoll would

specimens do exist, both in Texas and other part of North America, but they are much smaller samples and many are less well preserved, and may contain no associated artifacts or other pertinent information for archaeological interpretation. Only in Florida and Illinois do samples approaching in quantity and size exist out of approximately 300,000 known North American megalithic sites (a rough estimate of the number of sites).

The artifact assemblage from the early cemetery is unique and therefore cannot be found in existing collections. Some of the individual traits (or artifacts) found at Buckeye Knoll have been sporadically reported before, but never have they been found in association with the quantity and variety of materials at Buckeye Knoll as an integral material-culture assemblage.

The Advisory Council on Historic Preservation (ACHP) Policy Interpretation Memorandum #2-1, Treatment of Human Remains and Grave Goods, provides for the scientific study of human remains and associated grave goods when the research is necessary to address historic research topics. This site has the potential to address a number of compelling research topics that are fundamental to the Nation's understanding of our historical and cultural heritage. The ACHP policy also emphasizes that concern and consideration be shown for Native American customs and beliefs in regard to the treatment of ancient human remains. In order to ensure that this process is conducted with the utmost respect the Corps would conduct any studies according to the standards determined schedule and release them for final disposition as determined. Studies are complete. Native Americans would be consulted on the handling of remains during analysis to ensure respectful treatment.

This draft proposal of scientific analyses that could be recommended for site VT98 will be defined after consultation with the SHPO, consulting Native American Tribes and the archaeological consulting parties.

After all studies are complete, the final reports would most likely not be complete for another 1 to 2 years. However, reinterment of human remains and associated grave goods could occur as soon as bioarcheological and artifact studies are complete, in approximately 2 years from initiation of studies.

VII. Disposition

At the conclusion of any analysis that is undertaken, the Corps will make a recommendation to DuPont on final disposition of the human remains, artifacts, and other archaeological materials from the site. The extent to which the human remains and artifacts pursued depends on DuPont in its role as steward of the human remains and artifacts which have been removed from the site. The Corps will develop a final report and reinterment of all human remains and associated grave goods into a final disposition of the analysis, and caution of all other site matter the records and details of the reinterment should be developed in consultation with the Native American Tribes.

VIII. Final Products

Technical reports from each of the human studies, and a general report presenting the prehistoric Native American cultural context for lower Guadalupe region would be prepared. The history/ethnography report would develop general overviews for specific Tribes and cultures. The archaeology report would contain drawings of the burials that were recorded during fieldwork and drawings of mortuary artifacts. The bioarcheology report will contain accurate technical drawings of selected bone elements. Because high-quality black-and-white photos are, in certain cases, necessary to illustrate key aspects of bone, these will be presented in a limited-edition appendix for restricted distribution only to qualified researchers. Photographs of the burials taken in the field and high quality black and white photographs of the skeletal elements would not be published in the report but would be curated with other site records in an approved repository. Access to these photographs would be strictly monitored and limited to researchers authorized by the Corps. Publication of the photographs would be prohibited. The general report containing the prehistoric Native American cultural context would be written for the Tribes and general public.

IX. Conclusion

As the site is unique, so is the collection obtained during the Corps sponsored work. While other prehistoric cemeteries have been found in Texas, none are of comparable age to Buckeye Knoll. The earliest large cemetery known in the state prior to the work at this site was at the Ernest White site in Austin County, where the oldest burials are some 3,000 years later (and most still more recent, dating to the last 2,500 years or so). Thus, existing samples of human remains from the site cannot provide answers to the key issues of early population, demography and culture identified above.

The sample size at Buckeye Knoll provides the best opportunity scientists have ever had to address biological questions of early populations west of the Mississippi River. Older

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Current ARCHEOLOGY IN TEXAS

Texas Historical Commission Insists on Study of Buckeye Knoll Site (41VT98)

by Bill Martin

Three years ago, archeologists from the Galveston District of the U.S. Army Corps of Engineers approached the Texas Historical Commission (THC) seeking help in developing a plan to mitigate adverse effects to archeological site 41VT98 in Victoria County. The Corps was widening the channel of the Victoria Barge Canal, and a variety of effects to the site were under discussion, including depositing dredge spoil on the site and moving the levee and access road further west over previously undisturbed portions of the site. Although it is situated on property belonging to the Dupont Corporation, the Corps has an easement allowing it to complete all actions necessary to construct and maintain the channel.

THC has been instrumental in the development of the site's management plan, and the Corps is currently reviewing the plan. The site is located on the east bank of the Victoria Barge Canal, and is a significant archaeological site. The site is a prehistoric site, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan.

IN THE ISSUE

TEXAS HISTORICAL COMMISSION
STATE OF TEXAS
806 (41VT98)

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The Buckeye Knoll site, located in Victoria County, Texas, is a prehistoric site. The site is a prehistoric site, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan.

It was already clear that 41VT98 contained important information for the site was recorded in 1984. But its presence had been known since the 1940s when non-scientific artifacts were discovered in the site. The site was used in 1950 and an intact midden deposit was identified, as well as some human bone. On the basis of this information, it was determined to be eligible for inclusion in the National Register of Historic Places. However, nobody expected the unique and exciting discovery that made over 100,000 artifacts and 100,000 pieces of pottery. The site is a prehistoric site, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan.

Not only above this site preclude all other human remains by at least 2,000 years, it is also one of only three sites of this type in the state. The site is a prehistoric site, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan.

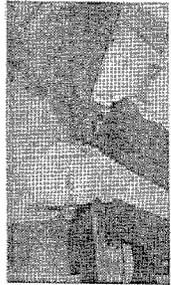
Robert Rabin, who is currently the director of the Texas Historical Commission, is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan.

backward ledge spoil that had been placed on the upper portion of the site during initial construction, and three other areas, middle deposits were identified. A large portion of the middle deposits were dated to the 1,000-year-old period, and the middle deposits were dated to the 1,000-year-old period, and the middle deposits were dated to the 1,000-year-old period.

Some necessary artifacts associated with the Early Archaic include an antler, a bone, and a stone. The site is a prehistoric site, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan.

Study of the site is currently underway, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan.

It may be wondered, if this site is of international importance and may be able to address questions related to the peopling of the New World, why does the THC need to invest in getting these materials analyzed? The answer is that the site is a prehistoric site, and the Corps is currently reviewing the plan. The site is a prehistoric site, and the Corps is currently reviewing the plan.



The photograph shows the site of the Clovis site in the state of Texas.

analysis. The THC allowed, stating that the course of action would continue to advance efforts. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

On January 14, 2001, the THC meeting was held at the University of Texas at Austin. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

During the meeting, the Corps indicated that the next step in the analysis and that disposition of the site is to be determined by the Corps.

has the right to decide their final disposition, under Section 106, the Corps is obligated to complete analysis and report preparation. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

The Society for American Archaeology (SAA), the leading national organization of archaeologists, requested one sitting every seven to ten days on the site. Under the regulations governing the federal process, any organization or individual may request to be included as a consulting party to the project. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

"The THC's position is that this site is beyond question and that full and sensitive analysis must be conducted as soon as possible."

On the evening of February 26, the Corps held a meeting at Victoria College to solicit input from interested members of the public. More than 200 people showed up to listen to the presentation and to voice their concerns. The Corps presented a detailed summary of the excavation with slides of the site, the excavation blocks, and profiles, but did not discuss the site's significance. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

With very little discussion, the Alabama-Coushatta and Cherokee, elected for no analysis, requesting removal of all human remains, mortuary artifacts, and non-mortuary artifacts that were part of a test-deposit. The Cherokee representative, John Williams, indicated that some degree of analysis was needed. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

policy calls for full analysis and curation. The THC's position is that the scientific importance of this site is beyond question and that full and sensitive analysis must be conducted as soon as possible. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

Saved people spoke at the meeting to present their views. The first was Annam, Adikere Rendon from Corpus Christi, a member of the Great Migration tribe, who has long been active in efforts to protect Mexican American history in the area. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

CURRENT RESEARCH

Recent Advances in Clovis Scholarship at Gault

by Jon C. Loeb, Marilyn Shoberg, Cindy Tomphey, and Michael B. Collins
Work at the Gault site has yielded an extraordinary amount of information about Clovis technology. The Clovis excavations have led to a new understanding of Clovis technology. The Clovis excavations have led to a new understanding of Clovis technology. The Clovis excavations have led to a new understanding of Clovis technology.

Since the Texas Archaeological Society (TAS) Field School in June 2001, advances, made, and other field schools have made important advances in understanding the Clovis period of Texas and North American prehistory at the Gault site, Hill County. These recent findings and discoveries came as part of ongoing work at Gault, which began in earnest in 1976. The TAS Field School, which began in earnest in 1976, was the first of several field schools to be conducted at the site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

Excavations at Gault, which will return in 2002, are being conducted by Texas A&M University, directed by Henry Steffy, and by the University of North Carolina, directed by James M. Adair. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

The recent advances discussed in this article, however, derive only from work conducted by the Gault Project staff of the Texas Archaeological Research Laboratory since June of

County Judge Helen Walker, Margaret Howard, on behalf of the Texas Archaeological Society, Glen Deane of Florida State University, who has analyzed remains from the Weaver site, and others. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

How will this all end? The Corps plan to weigh all input and make a decision on the site's disposition. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site. The THC agreed that the Clovis site is a significant archaeological site.

CURRENT RESEARCH

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2001 (see more results of the Texas A&M work on the web at: www.tamu.edu/with/tpsh/gc/gc1_files/frame.htm). Gault is located in western Hill County in the heart of the Texas Hill Country area. The site is located in the heart of the Texas Hill Country area. The site is located in the heart of the Texas Hill Country area.

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**TESTIMONY OF COLETTE Y. MACHADO, CHAIRPERSON
OF THE STATE OF HAWAII, KAHO'OLAWA ISLAND RESERVE COMMISSION
BEFORE THE SENATE COMMITTEE ON INDIAN AFFAIRS
OVERSIGHT HEARING ON SACRED LANDS PROTECTION**

Senate Indian Affairs Committee Room

June 4, 2002

Aloha Chairperson Inouye, Vice Chairperson Campbell-Nighthorse, and members of the Committee. My name is Colette Machado and I thank you for the opportunity to testify this morning before the Committee on Indian Affairs. I am an elected Trustee to the State Office of Hawaiian Affairs, and in that capacity serve as a member and chairperson of the Kaho'olawe Island Reserve Commission. This morning I will address the issue of sacred lands as it relates to Native Hawaiian traditional and cultural practices and the island of Kaho'olawe, Hawai'i. Like many indigenous sacred places, Kaho'olawe is impacted by the policies and actions of the Department of Defense. We support the Sacred Lands Protection Coalition and encourage the continued oversight hearings by this committee.

Kaho'olawe is the smallest of the eight major Hawaiian islands, lying just 7 miles off the coast of Maui. The island has a rich mythology and a long history of cultural use and religious practices. This is reflected in the profound discovery of over 500 archaeological sites and 2,000 features. Kaho'olawe, whose ancient name is Kanaloa, is the only island named for a major god. It was a place well known among our people for continuous religious practices from 900 AD through 1890. The island was taken by the U.S. military in 1941 for use as a bombing range during World War II. In 1953 President Eisenhower signed Executive Order No.10436 transferring the island to the U.S. Navy.

For nearly 50 years Kaho'olawe was used as a target range for ship-to-shore shelling, aerial bombardment, torpedo launching and artillery maneuvers by the United States

Colette Y. Machado
June 4, 2002
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and its allies. Nearly every type of conventional (non-nuclear) munitions in the U.S. arsenal was fired at Kanaloa. In 1965 the Navy simulated an atomic detonation that was seen and felt by its closest neighbor located 7 miles away on Maui. This detonation blasted through the island's substrate such that the resulting crater is filled with seawater. While the island's ancient significance was known or suspected by many of our native people, military training has resulted in the destruction of sites and degradation of the cultural landscape.

Frustration at the continuing destructive practices led to the first of several occupations by young native Hawaiians in 1976, protesting the desecration of sacred land and seeking the island's return to Native Hawaiian and local control. The protestors also filed a civil suit against the Navy (*Aluli vs. Brown*) for violation of several environmental and historic preservation laws, and sued for access to the island under First Amendment Rights of Freedom of Religion and Access. The Protect Kaho`olawe `Ohana (PKO) led the Native Hawaiian and general public protests to end the desecration of Kaho`olawe. The federal court sanctioned a Consent Decree in 1980 that required the Navy to meet the requirements of existing environmental and historic preservation law, and to provide monthly access to the island by the native plaintiffs. The PKO's role as Ke Kahu O Ka `Aina or steward of the island was acknowledged in a court ordered Consent Decree.

In 1990 the President of the United States issued a directive for the cessation of bombing. In 1992, Congress received the final report of the congressionally appointed Kaho`olawe Island Conveyance Commission. The report confirmed the rich cultural history and sacred nature of the island, and recommended its return to the State of Hawai`i.

In 1993, as part of the Defense appropriation act, in recognition of the State-Federal relationship and the historical cultural significance of Kaho`olawe, Congress directed the Navy to return the island to the State of Hawai`i, and to undertake a ten year program of environmental restoration and remediation in coordination with the State.

Also in 1993, the State of Hawaii legislature enacted HRS 6K which established the Kaho`olawe Island Reserve, and the Kaho`olawe Island Reserve Commission (KIRC) to manage it. The Reserve encompasses the entire island and 90 square miles of ocean surrounding it.

In recognition of the cultural importance of Kaho`olawe, State law prohibits any commercial use of the Reserve, but provides for the protection and perpetuation of Native Hawaiian practices relating to cultural, religious and subsistence purposes. Other allowed uses under State law include: ecological restoration, historic site preservation, education, which allows limited fishing. The law contains a unique provision which allows for the transfer of the entire island upon recognition of a Native Hawaiian sovereign entity by Congress and the State of Hawai`i.

In further recognition of the island's importance to Native Hawaiians, the KIRC management commission is composed of a majority of Native Hawaiians along with a variety of representatives from local government agencies. The KIRC has been given lead-agency authority by the State, to manage the island and to represent the State's interest in all matters relating the Navy's remediation project on the island.

The KIRC and the Navy negotiated and entered into a Memorandum of Understanding (MOU) regarding the Navy's environmental restoration and remediation project. The KIRC and the Navy further negotiated a regulatory framework and other agreements to guide the project.

In 1995 the KIRC completed the Kaho`olawe Use Plan (one copy will be provided) which incorporates the vision of a restored island functioning as a cultural-educational reserve where native practices would be practiced and spread across all the islands of Hawai`i. The Plan was given to the Navy to form the basis of their UXO cleanup of the island.

The environmental restoration and UXO remediation ("cleanup") of a sacred Hawaiian island demanded special agreements and arrangements. In the 1993 legislation authorizing the cleanup, Congress required the Navy to develop and implement a

cultural protocol to respect and protect the sites on the island. The Navy accepted the KIRC's request for a protocol which allowed KIRC to declare any cultural site "off-limits" to the cleanup. Also under the agreed upon protocol, the Navy contractor hired numerous archaeologists to provide adequate assessment and recordation of all sites to be impacted by cleanup operations.

In order to promote and encourage the cultural protocol, KIRC worked with respected Native Hawaiian practitioners (the Edith Kanaka'ole Foundation) to develop a series of Hawaiian language chants that could be used appropriately for a variety of Cleanup-related activities. The creation of these chants for a specific purpose, their traditional structure and many layers of meaning expressed in their beautiful poetry has garnered wide spread acclaim, and is considered by the KIRC to be a significant and successful expression of cultural sensitivity.

KIRC was successful in requiring mandatory cultural orientation training for all workers before accessing the island for the first time. These orientation sessions have been eagerly received and appreciated by the cleanup workers. Due to popular requests by workers, and an apparent need for further training, KIRC proposed that refresher cultural training be required, as is safety training and other refreshers. The Navy, however, did not concur, thus this program was not implemented.

During the initial months of the cleanup KIRC provided elders and cultural practitioners to lead the work crews in daily reminders of prayers and traditional chants at the beginning of each workday. Most workers and managers embraced this program as a very positive team building activity, as well as an effective tool to get the work crews focused on their work and safety for the day.

Other specific actions of note include the formation of an all female clearance team to "clean" an ancient temple associated with females and a female deity. Also of note, the project's work schedule was structured to accommodate the observance of the annual Makahiki ceremonies by Native Hawaiian cultural practitioners. The KIRC also

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prohibited fishing by cleanup workers in order to protect the ocean resources of the Reserve. Finally, a majority of local residents and significant numbers of Native Hawaiians are employed by the project.

However, there has been significant tension between the often diametrically opposed cultural objectives and need for interagency coordination, versus the Navy's cleanup objectives and mode of operation. The objective of completing the project as quickly and efficiently as possible does pose challenges to achieving requirements for cultural sensitivity and protection.

The historic military use of our sacred island implies a perpetual DoD legacy and relationship between our people and the department. Even if the MOU standards of cleanup had been achieved, residual UXO risk would be an ongoing issue. Since the Navy has informed us that the cleanup standard will not be met, a significantly larger UXO risk, as well as other, as-yet-undetermined, environmental contamination will result in more limited use.

In conclusion, I would like to summarize the successes and challenges faced by the KIRC in protecting sacred sites in the context of a Department of Defense undertaking:

Successes include:

- ❖ **The return to local control and the initiation of environmental and cultural restoration.**
- ❖ **Recognition of a cultural protocol both within formal agreements between the State and the Navy, and in actual contract provisions with government vendors.**
- ❖ **Required cultural orientation**
- ❖ **Enthusiastic positive response by workers.**
- ❖ **Sensitivity exhibited by the Navy's contractor in forming specific teams to address sensitive sites and scheduling work to allow for the uninterrupted**

practice of cultural ceremonies.

Problems and Challenges have included:

- ❖ **The forced trade-off of “lose or no use” (The Navy has proposed that if a site is to be closed to cleanup due to sensitive archaeological or cultural concerns, then the site must be isolated with a 1,000 foot perimeter fence with no access allowed.)**
- ❖ **Discouraging incidents of site vandalism and graffiti that are not yet resolved and which may be a symptom of the management challenges that come with increased public access .**
- ❖ **The expected shortfall of the cleanup from standards agreed to by the State-KIRC and the Navy in 1994 will limit the uses and cultural activities that have been planned for the island and make them more difficult to achieve.**

Thank you for the opportunity to testify before you today.

KAHO'OLAWE TIMELINE

- 900 A.D.** The earliest known use of Kaho`olawe for cultural and religious purposes via burials, temple or heiau with carved images of deities located along the southern coast of Kaho`olawe.
- 900-1890** Kaho`olawe used as a traditional Hawaiian purposes including fishing, religious structures, stone adze manufacturing, and dry land agriculture among others.
- 1890-1941** Use of Kaho`olawe for sheep and cattle ranching.
- 1893** Annexation of Hawai`i by the United States
- 1941** World War II and acquisition of Kaho`olawe by the U.S. military for training purposes.
- 1953** President Eisenhower signed Executive Order No. 10436 transferring Kaho`olawe to the U.S. Navy as a military reservation.
- 1965** Three simulated atomic detonations (500 tons TNT) conducted on Kaho`olawe.
- 1976** First of several occupations by Native Hawaiians protesting the desecration of Kaho`olawe as sacred place. Filing of civil suit (*Aluli v. Brown*) against the Navy for violation of environmental, historic preservation, and religious freedom laws
- 1980** The entire island is listed on the National Register of Historic Places.
- 1981** Consent Decree for civil suit approved by federal court and signed by parties.
- 1990** Bombing and military training exercises are ceased on Kaho`olawe
- 1991** Congressional designation of the Kaho`olawe Island Conveyance Commission (KICC) to provide recommendations for the return of the island.
- 1992** KICC final report to Congress recognizing the cultural and religious significance of Kaho`olawe and recommending that the island be conveyed to the State of Hawai`i and that the U.S. Navy conduct a clearance of unexploded ordnance and environmental restoration.
- 1994** Kaho`olawe Island and it surrounding waters conveyed to the State of Hawai`i. The State legislature establishes the Kaho`olawe Island Reserve and the Kaho`olawe Island Reserve Commission (KIRC) as the management entity until eventual transfer to Native Hawaiian sovereign entity.
- 1995** The Kaho`olawe Island Reserve Commission completes Use Plan for the island establishing it as a cultural reserve. The U.S. Navy begins its cleanup of the Reserve.
- 2003** The U.S. Navy ceases cleanup activities and returns control of the Reserve back to the State of Hawai`i.

Winnemem Wintu position regarding Shasta Dam

ABSTRACT

Prepared for the Senate Select Committee Hearings in Washington DC, June 4, 2002

The Winnemem Wintu are an historic tribe of California. Once many in number, the Winnemem and the other 8 bands of Wintu, have lived through the holocaust that is California's gold rush legacy. Numbering well over 20,000 souls prior to 1848 the Wintu and the Winnemem in particular were reduced to 395 surviving people by the turn of the 20th century. Un-ratified treaties, unscrupulous land deals and cultural genocide have plagued the Wintu people. The Winnemem, however, have remained true to the traditional lifeways of their grandfathers and grandmothers, continuing to care for their ancestral lands in the shadow of Mt Shasta to the north down the McCloud River and its tributaries to Bear Mountain to the south.

Since 1889 the Winnemem have fought for their rights as signed for in the 1851 Treaty at Reading's Ranch, also known as the "Cottonwood Treaty"; the government proposed purchasing land for the Winnemem along the McCloud River (Sections 1, 11 or 31, Township 34N, Range 4W MDM). This was never accomplished due to the speculation of a large dam that would be built that would supply water and power to the people of the state. Knowing this, the government gave land allotments to the Winnemem along the McCloud and there we lived until the construction of Shasta Dam began in 1938. Our testimony will describe the effects of the dam's original raising and the effects that will come from the proposed increase of the dam's elevation by the federal government. We will discuss the effects on our culture, our elders, our sacred places we continue to utilize and most importantly the devastation that will come to our people, again, at the hands of the Great Fathers in Washington DC.

We will again ask the question proposed in the original Wintu- ana Petition of 1889 wherein Norel Putis asked Should you our high chief be unable to obtain this justice which would be of small cost to the American Nation but precious to our people then we beg you to inform us so we may see our position and know at last that there is neither justice nor equality in this white man's Republic.

Submitted for your consideration this date: May 31, 2002

We will have a full written text of testimony ready prior to the hearing on June 4, 2002 for submission as adjunct material.

Mark Franco and Caleen Sisk-Franco
Winnemem Wintu Tribe

To Understand the Present We must look to the Past:

A LITTLE JUSTICE FOR WINTU INDIANS

"Great nations, like great men, keep their word."
Justice Hugo Black, commenting on Indian treaties.

Wintu Spiritual Doctor, Florence Jones says, *"If our sacred fires are not built, our children will not learn."* She also says, *"I've helped many people and have so often traveled far to help them. I have prayed for every human no matter what race, so that the world will last a little longer for us all. Not once have I asked for anything back. Now my own people are to be driven from our land again. So, I am asking for a little justice for my people. Couldn't just this once, someone help my people?"*

Florence Jones was 75 years old when she made this statement; she is now 93 and asks that we again contact the government for redress of the tragedy that has befallen her Winnemem Wintu people. The following abstract is but a small window into the history of the Winnemem Wintu. This story is, on one side wrought with intrigue, deceit, tragedy and shame and the other with determination to rectify a miscarriage of American justice.

The honor of the United States and its avowed principles of freedom, due process, and self-determination will continue to suffer severely in the standing of the world community as long as the rights of the Native American Indians are not respected or protected. The leaders of the United States speak to no avail when they espouse human rights on foreign affairs. Not to say that that's wrong, but only to point out that, we, the first Americans, are still here and are still suffering from malnutrition, suicide, inadequate education, high infant mortality, unsafe-unsanitary housing, and on-going cultural genocide with no apparent solutions or consideration from the United States. Somehow, America's population has resigned its ownership and relieved its conscious of the national tragedy of the plight of the Native American Indians. Today, Indian people throughout this nation *are* suffering from the very same reasons the Civil Rights groups and Peace Centers are actively protesting the treatment of native peoples in other countries like Nicaragua and El Salvador, The Balkans, Tibet and China. The only difference is that, here the performance is less blatant. A more insidious approach can be expected and afforded by a more experienced government, practiced in methods of annihilation. The fact is cultural genocide is still happening to Indian people in the civilized democratic U.S.A. in the presences of a somewhat uninformed society.

The U.S. Government has always acted to protect "her people no matter what the cost, so that they could continue to prosper and live on land that was never rightfully opened for Public Domain. California is one of the biggest land grab rip-offs that have occurred in history. The California Indians have been stripped of all possessions: land, timber, gold,

water, minerals, fishing and hunting rights, homes, and in all too many cases, complete tribal groups were exterminated. Yet the country sang of "...the sweet land of liberty, land of the pilgrims pride, home of the free and the, brave, and celebrated the Thanksgiving holidays.

I know that my ancestors were the ones hunted and killed on the Sunday picnics in Shasta County in the 1850's to the 1890's. Who were the hunters? I know it was not the Russians or Middle Eastern terrorists, although they are the most feared enemies of the U.S. This history is not of such ancient years: My grandmother was born in 1888 and her mother was born and raised in the midst of Indian hunts. Extermination policies were practiced by farmers, trappers, miners or anyone else who had a mind to take the life of any Indian for any reason. Those stories run vivid among Indian family histories, which parallel that of the statehood of California.

By 1850, California was admitted to the union and the gold rush was on and so was the Indian extermination plan. However, relief was sought because warfare had become increasingly unacceptable to many citizens, horrified by reports of the massacring of Indian women and children. Moreover, war cost the federal government too much. In 1870, officials estimated that the Indian wars cost more than \$1 million for each dead Indian. It was cheaper to feed them for a year than to fight them for a day and impossible to move them any farther west. Therefore, in 1850, President Fillmore sent three Commissioners to California Territory to negotiate treaties with the Indian tribes. Treaties made were of "peace and friendship", instead of removal. One must remember that these treaties were not signed in defeat, but showed the Indians' willingness to accommodate themselves as much as possible to the needs of the newcomers.

The U.S. was eager to have its own citizen's settle and establish legal claims to the land, but was so unwilling to agree to set aside the small tracts of land the treaties would have guaranteed for the few Indian tribes that ceded millions of acres. By 1861, the eighteen treaties made with only one-fifth of the tribes in California were un-ratified and in the process of becoming the Senate's "top secret by public demand, hidden away until 1904 when they were accidentally uncovered in the Washington D.C. archives. In 1889, Norel Putis and a delegation of Winnemem Wintu headmen sent a letter to ten President Benjamin Harrison asking for redress of their status, some modicum of payment for the loss of traditional lands and the destruction of whole villages of innocent people. Jeremiah Curtin delivered this letter to the President who authorized agents to come to California to seek replacement lands and correct wrongs. In the meanwhile, miners, settlers, trappers, and farmers called for military protection as they took possession of all the lands. Thousands of California Indians died for land that the civilized race could put to better use.

In 1790, Congress passed the Indian Trade and Intercourse Act. To recall the words of the "Father" of the country, President George Washington said, "*Here, then is the security for the remainder of your lands. No state, no person can purchase your lands unless at some public treaty held under the authority' of the United States. The General Government will never consent to your being defrauded but it will protect you in all your*

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just rights. In making the state of California, these words were forgotten. The United States chose to ignore this statement of land security and the treaties were never ratified nor has just compensation for the defrauding ever been corrected. Because there were no treaties, the wars between the whites and Indians continued. The population Winnemem Wintu people along the McCloud River to the confluence of the Sacramento and Pitt Rivers dwindled from 14,000 in the 1850's to an estimated 385 by the 1930's. Both my grandmothers were very lucky to have survived and raised their families during this time.

In 1887, the Dawes Act (another Indian land grab scheme) actually worked in favor of some California Indians because it gave up to 160 acres to Indian applicants. Some Wintu's received allotments along the McCloud River. That was fine until the 1940's when the U.S. decided the Shasta Dam held priority and would certainly benefit the country. So again, without compensation, the government drove the Winnemem Wintu from their land to allow for the "worlds largest man-made lake". The lake left our homes, farms, fisheries and our cemeteries destroyed. The dead received new homes in Black Canyon, a cemetery we still hold, but not the living.

The landless state of the Winnemem Wintu Tribe in Northern California, through various forms of alienation and dispossession, is among the most serious problems existing among us today. In 1971, a group of Wintu Indians gained control of a 61 acre, abandoned, Job Corps Center through occupation. This is the "only land base" the Wintu have and have held for the past 30 years. All the prayer grounds, sacred places, and ceremonial grounds are owned by the government or private parties. Although, the Winnemem Wintu have been able in recent years to secure easements to some sites privately held. The Wintu Tribe filed a lawsuit against the Bureau of Indian Affairs, in essence against the U.S., in an attempt to stop them from taking the 61 acres known as the Toyon Wintu Center. The Bureau of Indian Affairs *is* supposed to act in the "utmost good faith" and in the "best interest" of the Indians on behalf of the U.S.

The BIA began to fulfill their fiduciary trust relationship responsibilities to the Wintu Tribe on a very minute scale when, in 1973, they contracted a Use Permit allowing the Wintu to control the Toyon Center. This use permit provided the opportunity for self-determination, which was a stated policy of President Reagan's Administration. In 1985, a Mr. Christie (Hoopa Agency), and Mr. Babby (Central Agency) BIA as well as other personnel said that because the Wintu are not a "federally recognized" tribe, they are not Indians. Therefore, they (the BIA) have no trust responsibility or fiduciary obligations to the Wintu. They (the BIA) claimed that the 34 federally built houses were generally unsafe and unsanitary. They saw the only solution to this condition was to bulldoze all the structures at a cost of \$205,000 dollars. When this was accomplished, the BIA turned the 61 acres of destroyed, rubble-strewn land back to the General Services Administration.

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At this point, the BIA completely robbed the Wintu Tribe of our self-sufficient livelihood at the Toyon Wintu Center. A government task force documented that worse housing conditions exist on federally recognized reservations and rancherias. Local housing authorities at the time agreed that the 34 two, three, and four bedroom houses could easily be rehabilitated at very reasonable low cost. For \$205,000 dollars, the BIA destroyed 34 homes for low-income people; money more wisely used to remodel the homes when there is already a shortage for such housing. The planned eviction of the over 100 residents occurred with only a Superior Court decision holding them from carrying out their orders; The BIA claims that without federal recognition the Wintu have no legal right to Toyon.

In 1985, access to federal assistance available to Indian people was revoked as the Winnemem Wintu, Nor-el Muk, and Wintu people from scattered bands were denied their right to educational, housing, health, and other services guaranteed Indian people. The Zarr decision said, in effect, that the United States government agreed that Indian tribes could decide their membership, but the government would determine the tribes. Thus, the homeless Indians residing on Rancherias, federal trust lands, were deemed recognized and those, like the Winnemem Wintu who maintain the traditional sacred places, not held in trust, were deemed non-federally recognized. A pathetic note regarding the Rancheria tribes is that the Winnemem Wintu sent a delegation to Congress in the 1920's fighting for land for the homeless Indian people who we supported on our home territory. The irony is that these same homeless Indians are the ones called upon today by the government to decide what occurs within our sovereign territory and what happens with our sacred sites and repatriation issues.

If we are "unrecognized" then we must still be at war with the United States over our land. Our claim is that we are recognized and have been throughout history by the United States government, California's state government and our local governmental agencies.

In the 1840's Richard Henry Dana writes of contacting Wintu people

In 1851, Commissioner Wozencraft made a treaty that reserved 35 square miles of land beginning at Cottonwood Creek following north along the Sacramento River.

In 1887, we were included in the Allotment Act (Dawes Act)

In the mid 1880's, the Baird Fishery was established on the McCloud River using Winnemem Wintu laborers

In 1889 Jeremiah Curtin carries the Norel Putis letter to President Benjamin Harrison

In 1924, we were granted citizenship under the Snyder Act

In 1928, a large Winnemem Wintu delegation traveled to San Francisco to sign up for lands claims. A photo of the event is listed in Smithsonian holdings

In 1928, the California Tribes were allowed to sue the United States

In 1934, we were included in the Johnson O'Malley Act

Until 1956, we too were not allowed to legally purchase alcohol

In 1964 we too were excluded in the Civil Rights Act by the Humphrey

Administrations' vote of 61 to 30

In 1928, 1954, and 1968 we proved our rights to California land and were listed on

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the California Indian Roll Books held by the BIA.

In 1972, we were included in the Indian Self-Determination Act

In 1976, we were included in the American Indian Religious Freedom Act (through this Act our Wintu Spiritual leader was granted use of several sacred places by a branch of the Federal Government).

We are in possession of United States Fish and Wildlife Service permits to hold eagle feathers

We are in possession of United States Forest Service permits to collect and harvest medicinal plants and unlimited use of our sacred sights

The Bureau of Land Management holds the Indian Cemetery at Black Canyon under the Wintu Tribe/Winnemem Wintu name

We are in possession of newspaper articles as far back as 1852 noticing events and occurrences involving Winnemem Wintu Indians

None of the above-mentioned Acts state that only recognized tribes are to be affected by the enacted legislation.

We contend that we are in fact "the people of this land". We are the historically recognized tribe and have repeatedly been recognized by the Federal Government. The Wintu have every right to the 61 acres of the Toyon Wintu Center, land that no one else wanted. The Winnemem have every right to compensation for the loss of our lands, water and timber, minerals and livelihood. We have applied for recognition under the BAR process, only in response to a request by the government to meet requirements set forth in the stipulation agreement. We know that it may take upward to 10 years for the government to decide if they want to federally recognize a tribe; although the distinction between recognized and unrecognized *is* not necessary and seems to only serve the purpose of separating Tribes as a whole. The BIA insists that a tribe must be recognized for them to become involved. In the meantime, they will take the land again and set rules that make access to our places nearly impossible.

There are, however, other methods of recognition available. The President of the United States could grant recognition by Executive Order. Based on the information and data already certified by the BIA found in the California Indian Roll Books, recognition could be granted immediately. Another option is a Technical Correction whereby the BIA simply lists the Winnemem Wintu in the Federal Register because we were inadvertently omitted in 1985. A third method would be through legislation (to which we have submitted several draft versions for congressional support. Finally, we could sue the BIA in Federal Court utilizing the same rational as the Muwekma Ohlone.

Is there no relief or support from the public to stop this government action? If not, the result is the Redding Museum and libraries will be the few places you will find information about Wintu Indians. It will be a shame to refer to the Wintu in the past tense. Everything you say will begin with "used to..." "They used to live here, used to dance here, used to fish, they used to..." It is hard to preserve the last of the Traditional Wintu ways in today's society, much less, to do it when our old people are dying and our people are scattered everywhere and struggling just to have a place to live.

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Trying to gain that little bit of JUSTICE is one of the most costly, lengthy, and exhausting tasks that our Tribe faces today. Our challenge is to maintain control of our own lives, maintain our traditions, and above all, keep our dignity.

The River prior to the Dam

The Winnemem have long lived in the watershed of the McCloud River. Winnemem means Middle Water in our language. Our territory is from Mt Shasta in the north down the McCloud and it's tributaries to Bear Mountain in the south.

Our villages have always been close to the swift moving waters of the McCloud, a fact that assisted our ancestors in staving off the ague and malarial fevers that accompanied the first non-Indians to our land in the 1840's. In order to understand the importance to the culture of the Winnemem Wintu people, one must first look at the history of the tribe as it is known to the non-Indian. The following information is as recorded by non-Indian historians, anthropologists and others who have since the 1840's been exploring the cultural world of the Winnemem in all of the different names and descriptions ascribed to us. We have been known variously as: Northern Wintoon, Baird Indians, Okwanuchu (a Shasta Indian word for the people of the north) Oyalca / Wailacca (various spellings meaning northern people), Northern Wintun, Baird Auxiliary and many others. We call ourselves the Winnemem Wintu (Middle water people).

A Brief History:

1851 Cottonwood Treaty

The Winnemem Wintu, represented by Num-te-re-man, were signers of the August 15th, 1851 treaty made and concluded at Reading's Ranch on Cottonwood creek, State of California between O.M. Wozencraft, US Indian Agent for Northern California, and the Chiefs, captains and headmen of the different bands of Wintu Indians. This treaty, never ratified, would have provided a 35-mile square reservation for the Wintu people.

1889 Norel Putis Letter to Benjamin Harrison

The Wintu-Yana Petition, as this letter is referred to, was a direct plea by the Winnemem Wintu to the United STATES Government for clarification and rectification of the conditions heft on the Winnemem due the incursion of non-Indians onto Winnemem land as a result of the duplicity of the un-ratified Cottonwood Treaty. The letter pleads for better treatment of the Winnemem, other Wintu bands and the Yana, all of whom had suffered horribly at the hands of the non-Indian. The letter concludes by asking for justice for the Wintu. This letter became a catalyst for the purchasing of lands for AHomeless, landless Indians, the Rancheria act and the inclusion of California Indians in the Allotment Act of 1887.

1890 Tinker letter

AM Tinker is sent to California by the Private Secretary to the President of the US to investigate the Wintu/Yana petition and the claims they made. This letter specifically

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states the condition of the Baird Indians and that Allotments may be the answer for the Baird Indians who do not wish to be moved from the McCloud River.

1891 Michael Piggott letter

This letter specifically states that the Baird Band of Indians or the McCloud River Indians are eligible and deserving of the government's assistance to find land for their homes.

Michael Piggott is sent to California by the Commissioner to fill out Allotment applications for the Wintu and other Indians in need.

1893 Allotments

Grover Cleveland, President of the United States, authorized the issuance of land allotments to members Winnemem Wintu Tribe. These allotments of 160 acres allowed the Winnemem to remain on the river.

1897 Last Dance

The Winnemem hold what the whites called their last war dance at Baird. This event was captured on film and shows William Curl in his traditional dance regalia along with other prominent Winnemem men. The ceremonies will now be held in secret away from the non-Indian people. Other non-ceremonial events will continue throughout the next 50 years as the people continue to celebrate together. The medicine ceremonies remain in the hands of the traditional leadership to protect the sacred places and ensure the continuance of the culture. Although this was called a last dance, the Winnemem continued to hold ceremony in secret, away from non-Indians as a form of self preservation.

1914 Baird Indian Appropriation letter

October 3, 1914, Horace Wilson, Supervisor within the Department of Interior submitted to the Commissioner of Indian Affairs in Washington DC a letter indicating that the Baird Indians along the McCloud River should have purchased for them a tract of land. The Winnemem were included in lists of deserving Indian bands and as the letter indicates, the others listed eventually received land bases but the Winnemem (Baird) band did not.

1915 John Terrell letter to Cato Sells

On April 20, 1915, agent Terrell reports on his progress while purchasing lands for California's Indian. Terrell describes the Indians near Redding as not fitting within the guidelines of the Allotment Act. He states, however, that the Baird (Winnemem) Indians, in need of homes. On page 4 of his letter he acknowledges a Wintu Tribe. He further states that he investigated lands above the government fishery at Baird and proposes the purchase of these lands for the Winnemem. He describes the self-sufficiency of the Winnemem based on the salmon and other sustenance crops. DP Doak who owns several tracts of this land is approached and is mentioned in later letters. This letter also includes a census of the Indians present, which includes the name of Flora Curl age 5. Florence Curl Jones is now 95 and still the leader of the Winnemem people.

1915 DP Doak declines sale

In August 1915, Terrell reports to Washington that DP Doak, the man who had obtained land on the McCloud River, refuses to sell land for the Indian Allotments,

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waiting instead for higher prices due to speculation of the building of a new dam that would provide power to the state. Doak states that he will not cause problems for the Indians living on his land. The letter also states that the government will provide lands for the Indians once removed due to the dam's construction.

1922 Redding Rancheria

Redding Rancheria created for homeless Pit River, Yana and Wintu from desolate bands. Winnemem remain on River awaiting response to inquiries.

1924 San Francisco Exposition

Wintu people from all bands travel to San Francisco to celebrate the Snyder act.

1925 Baird Auxiliary

The Winnemem Wintu form a group called the Baird Auxiliary to address the US Court of Claims for the lost 1851 Treaties.

1928 First of Many Trips to Washington DC

Joe Campbell and Alfred Gillis, Winnemem Wintu, travel by train from San Francisco to Washington DC to express the need for an investigation of council who were charged with pressing the Winnemem case and the manipulation of the law relative to the lost 1851 treaties.

After the Dam

1938 Construction begins on Shasta Dam

This dam creates the largest man made lake in North America and will eventually inundate Winnemem territory along the lower McCloud River

Florence Curl relocates from the flooding McCloud River at Baird to the village site located at the eastern base of Bear Mountain. This property was then owned by Andy Jones who Florence marries. The village is called Kerikmet. It is one of 16 villages surrounding Bear Mountain and the only one still inhabited into the 21st century by Winnemem Wintu people.

1941 Winnemem Wintu delegates again come to Washington to fight for the passage of SB1112, a bill which will allow California Indians the right to employ their own attorneys to press claims against the government. The Winnemem are aware of the proposed settlement of the claims case and try to warn other tribes that it is unacceptable. Pearl Harbor- over 50 Wintu men serve in the US armed forces. Also, The United States Shasta Reservoir Indian Cemetery is created by act of Congress, approved July 30, 1941 (55 Stat. 612) By terms of said act of Congress the title to the Indian Cemetery is held in trust by the United States for the burial of Indians only and will be held for the Indians and their families.

1942 Winnemem remaining along the river actively lobby against the California settlement proposed offer.

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1943 Winnemem are removed from their homelands on the lower McCloud River (Baird area). Water will soon inundate these village areas and sacred sites due to the filling of Shasta Lake.

1944 California Claims Pay out
US Court of claims awards 17 Million dollars to all California Indian to compensate for the 18 unratified treaties. This works out to 1.25 per acre. The government deducted 12 million for the 600 thousand acres made into Rancheria and reservations. Winnemem did not receive their land but Winnemem continued to press their claim for lands within the homelands and the allotment denials for children of previous allottees.

1950's

Former president Herbert Hoover heads California commission endorsing termination policies for California. This termination sentiment prompts Congress to pass House Concurrent resolution 108 Aug. 1, 1953, that declares all Indians should be free of government control and eligible for services available to any citizen. Within two weeks Public law 280 enacted which, transfer responsibility for Indian policy from the federal government to state and local agencies. Interim committee from California senate holds hearing in 1954 and finds most reservations are unprepared for termination. State of California does not want to accept responsibility for financially correcting the BIA's financial failures and fights federal termination legislation. Despite this, Aug 15, 1958, the first California Rancheria Bill is enacted. 41 rancherias throughout California are terminated. Winnemem continue to oppose the settlement offer of 1.25/acre this continues, actively from 1943 to 1963.

1960's

During the turbulent 60's the Winnemem continue to oppose the land claims decision. The sixties saw a rise in radicalism and more Indians went to colleges and universities as well as vocational programs. Winnemem students begin to come home with vocational training paid for by BIA funds. Toward the end of the decade, as surplus government land was being seized by Indian groups, plans began for the Wintu to occupy Toyon.

1970's

During this decade numerous Winnemem Wintu are attending colleges utilizing BIA higher education grants. These will later be denied to the same Individuals as the Bureau tells them they are not Indians. The Winnemem challenge this arbitrary action in Malone vs. Morton. This opens the right for Winnemem to challenge on a case-by-case basis the right to funding as Indian tribal members.

1971

Toyon Center, an abandoned government housing project, developed for the builders of Shasta dam occupied by the Winnemem, other Wintu band members and other outside

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Indian people. This site was help until 1989 when the government forced the residents out and bulldozed all of the building to the ground. The Winnemem continue their efforts to resolve treaty violations and continue their ceremonies, which had been held, under ground since 1897.

1978

Florence Jones is successful in her suit brought under the Indian Religious Freedoms act and receives a use permit to opening practice the Winnemem ceremonies on what is now considered US Forest Service land. This is believed to be the 1st successful use of the AIRFA. This current permit with the USFS expires in 2005 and will be renewed in the name of Florence's successor.

1980's

Ceremonies continue openly for the Winnemem and permits and MOA's are developed for the protection of tribal gathering places, ceremonial sites and sacred places. The Winnemem Wintu work with government agencies and programs in the areas of education, health and housing. In 1985, word is received that IHS services will be terminated for Winnemem tribal members. The Winnemem begin asking why the government is doing this. In 1986, Caleen Sisk Franco receives a federal Fish and Wildlife Permit under 16 USC 668a and 50 CFR Part 13 and 50 CFR 22.22. This permit allows her permission to hold and carry Eagle feathers, parts and or carcasses and is an indefinite use permit.

1987-89 B the Winnemem continue with ceremony and support the Wintu-Toyon group in their fight to retain Toyon Center.

1989-90 B The BIA completes destruction of Toyon and during cleanup burns down a building designated in a stipulation agreement filed in federal court to serve as an administration building. This stipulation agreement also forces the Wintu-Toyon group to file a petition under the FAP to hold the land. The Winnemem support the other bands efforts in this application but continue to seek redress for their concerns of whom and what authority granted the BIA government the right to cease dealing government to government with the Winnemem? This occurred despite other government agreements between the Winnemem and the USFS, BLM, and USFWS. The Winnemem continue to hold meeting with Caltrans, US Forest Service, BLM and other state and local agencies to protect herbal gathering areas, sacred places and waterways.

1987-1999 B The Winnemem engage in a lawsuit against the Forest Service to stop development of a ski resort on Mt Shasta. This ends in victory for the tribe.

1990's

June 16 1990, Caleen Sisk Franco, her husband Mark, nephew Rick Wilson and Susan Marie engages in a fast for acknowledgement, under the direction of Winnemem spiritual and tribal leader, Florence Curl Jones, in an attempt to seek clarification of the Winnemem's tribal status and to assist the other bands attain their tribal rights. This fast

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lasted 21 days and was brought to a close by Senator Daniel Inouye promises to assist the Winnemem Wintu in clarifying their status.

1993 the Indian Health Service terminates service to the Winnemem Wintu. Another fast to the death is held by Mark Franco and Rick Wilson and a delegation including Florence Jones and Caleen Sisk Franco go to Washington and speak with Assistant Interior Secretary Ada Deer. Secretary Deer informs Michael Lincoln, acting director of I.H.S to resume services in order to prevent a preventable tragedy.

1995 Florence Jones retires and begins transitional process for the new leader of the Winnemem Wintu. Caleen Sisk-Franco is appointed her successor and continues the ceremonies and tribal leadership. Additional permits are obtained from the federal government and easements, granted by private lumber companies and facilitated by the USFS are obtain for sacred sites on private lands.

1999 The Winnemem Wintu establishes the Lubeles Academy Charter School to preserve our traditional culture while educating our children to face the challenges of the non-Indian world.

2000 to present

Charter school expanded to Barona Indian reservation and later to Yreka California. Ceremonies continue as well as work on preserving sacred sites without government assistance. Florence Jones celebrates her 94th birthday and still asks: Who gave these people in Washington the right to take away my land, my water and my rights? We ask you the same.

2001-2

Winnemem Wintu Delegations travel to Washington DC to seek assistance in re-affirming tribal status.

October 17th 2001 McCloud Bridge Replacement

This is the date that the Winnemem first learned that Shasta Dam was in line for an elevation change. The McCloud Bridge sits adjacent to our ceremonial sites, a large burial site and gathering location for our people. Replacing the bridge, as we learned, was a FHWA project. Research led us to the Dam rising and yet another battle to maintain our cultural areas.

2002

June 4th, Winnemem Wintu leaders Caleen Sisk-Franco and Mark Franco testify before congress on sacred sites protection. In particular the raising of Shasta Dam and the catastrophic effect it will have on remaining sacred sites and ceremonial grounds still in use after all of the years of cultural genocide.

And now

Now the Winnemem face another hurdle, one that can potentially complete the dislocation of our culture started 151 years ago. We first officially heard of the raising of the Shasta Dam, not through notice from the government (probably because you do not recognize us as a viable people) but through the good graces of a fellow California Indian

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whose people gave us a heads up of a CAL-FED water hearing that was to take place in Redding, California. We were told that the idea of a proposed rising of the Shasta Dam was being placed before the public for comment. This speaks volumes for the problems we face when trying to work with agencies within the federal government. Because of our non-acknowledged status, we are not included in any communication loop; information that things are occurring generally comes to us through the moccasin telegraph that is word of mouth from other tribal groups who respect our role as traditional peoples.

An issue of concern that provided us our own heads up that something was coming was the proposed replacement of the McCloud River Bridge on Fender's Ferry Road in Shasta County. This bridge crosses the McCloud River arm of Lake Shasta directly adjacent to numerous Winnemem village sites, ceremonial places that are still in use to this day, a large, previously undisclosed burial ground and sacred sites, documented and recorded with the United States Department of Agricultural, United States Forest Service. What led to the discovery of the dam was information that the replacement bridge was to be 10 feet higher than the original. When asked why the height disparity, the Winnemem were told that it was to allow for room under the bridge (four feet below the bridge to be above the high water mark of the lake. When the engineer was told that the height seemed really quite high, the Winnemem learned that it would be within the limits of the new dam level.

Prior to this, to our knowledge, no consultation had occurred, no environmental impact reports submitted or any National Historic Preservation Act Section 106 work had occurred. Subsequent to this discovery, the Winnemem learned that a report had been submitted by an archeologist hired by the US Forest Service indicating that nothing of cultural significance was located within 300 yards of the proposed bridge. The date of this report and the clearance issued by the State Historic Preservation Office in Sacramento, California was approximately 6 months prior to the actual project description being submitted. At that time the Forest Service was notified by the Winnemem of apparent blatant falsification of reports and violations under section 106 of NHPA. To date nothing has happened regarding this complaint.

Raising the level of Shasta Dam will in effect destroy the remainder of the Winnemem Cultural and religious sites near the shores of the McCloud. We ask that the congress look at the raising of the dam as an unneeded expense and one that will cause more harm than good. As the last stronghold of our cultural existence we beg for justice in this case.

The following information comes from the US Bureau of Reclamation report on the Shasta Dam enlargement. We include this section of the report, *Shasta Dam and Reservoir Enlargement - Relocations and Replacements May 1999*, with analysis from the Winnemem in red.

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Relocations and Replacements

There are three main categories of relocations and replacements that are of particular concern when considering enlarging Shasta Dam and Lake. These are transportation route relocations and replacements, recreational facility relocations, and community relocations. As you can see, no mention or consideration of tribal rights or concerns is listed in this report. We were not involved in the planning of the document, no consultation occurred with the Winnemem as the people most affected by the dam in 1941 or today.

Recreational Facility Relocations

There has been extensive development of rural recreational facilities around Shasta Lake. Most facilities are near the existing shoreline, although private fly-fishing clubs are known to be operating on the McCloud River in potentially inundated areas. (The Bollibakka Club, located up river on the McCloud is owned by a private concern. We have worked with the people of this club in trying to protect the river over the years and have numerous sites that are located within their property boundaries. This report indicates that areas will be inundated to us this is significant as the club is located approximately 3 miles up river from our sites, held on public lands by the US Forest Service. Recreation facilities include campsites, picnic sites, swimming beaches, boat ramps, and several historic fly-fishing club lodges. Relocation of recreation facilities and appurtenant facilities includes roads, power and telephone utilities, bridges, administrative buildings, resorts, special use permit recreation residences, and other recreational support facilities. Most recreation facilities lie above elevation 1085, with the exception of some buildings associated with fly-fishing clubs. Consequently, the Low Option raise to elevation 1084 (joint-use water surface elevation 1075.5) reduces substantially any need for relocation of recreational facilities. Some modifications to existing facilities may still be required at some sites, but complete relocation will not be required for the most part. For all options above elevation 1085, recreational facilities will be adversely affected and, to the extent possible, will need to be relocated. The portions of the McCloud River (Winnemem Sites located along the 35 mile length of this river), the Upper Sacramento River (area of concern for the Nor El Muk Wintu, Squaw Creek (Winnemem sites along this tributary), and the Pit River (numerous sites on the lower Pit River that are Winnemem) that will be subject to reservoir inundation would no longer be suitable for fly-fishing during those times when inundated. Again, the concern for fly fishing is admirable, but no mention is made of the cultural loss to the Winnemem. Raising the lake to any of the proposed elevations is not likely to affect Shasta Caverns, other than possibly limiting expansion plans under the highest elevations of opening caverns below elevation 1271.5. Shasta Caverns is a highly visited tourist attraction in the area. A privately operated company conducts tours of the caverns. The entrance to **Samwell Cave**, however, is at elevation 1270. Filling of the reservoir will likely adversely affect this cavern, since most of the **cave** is below the entrance. The Samwell Cave (Samwell is a bastardization of the Winnemem word Sauwel or sacred. It contains the many artifacts from our people. Some items have been removed without our

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permission and due to the recognition situation; we are not eligible to retrieve these items through NAGPRA protection. This cave also is a site that we hold dear and is connected to other documented sites along the bank of the river. If the water rises to 1271.5 feet, it would be like standing at the base of the Capitol building in Washington and looking up to the dome. That much water would be over our heads. Other caves below elevation 1271.5 will potentially be flooded.

Community Relocations

Two small communities at Lakehead and Lakeshore would be affected by the Intermediate and High Option enlargements. Detailed topographic surveys need to be completed, but preliminary information indicates that these communities would be only minimally affected, if at all, under the Low Option, where the joint-use water level is at 1075.5. Several other smaller communities and developments would also be affected by the higher raise options. These include the communities or developments at Delta, Vollmer, and Antler, among others. These communities would have to be relocated. Here the Winnemem can relate to the communities. Our homes, allotment lands (given knowing the dam was coming as early as 1915) ceremonial roundhouses, dance pits and sacred sites were destroyed by the first dam's rising waters. Our dead from old Antlers, Delta and Vollmer, have already been removed. As we see it the rising waters that will now affect the non-Indians who have taken the land after we were forced off must be stopped. The United States tells the world how to treat each other. The Winnemem have never had the luxury of such care. We ask that you protect your people. Even though you could protect us.

The Winnemem Wintu wish to thank you for recording our statement into the official proceedings of this hearing. We thank you not for ourselves but for our people who have gone before us, for our elder Florence Jones (95) and her daughter Grace (76) and all our young people who have grown up seeing some of the places we are fighting for today, knowing that they cannot visit many of the spiritual places until they are older and hoping that what we do here to will be of great good for our people and our heritage. We thank you from our sacred mountain, Bulyum Puyiuk (Mount Shasta) our sacred Winnemem Waket (McCloud River) and from our very being as the caretakers and keepers of our traditional lifeways.

Submitted This Date:
Mark Franco and Caleen Sisk-Franco
Winnemem Wintu

Testimony of Noa Emmett Aluli, M.D.
Senate Indian Affairs Committee
Oversight Hearings on Protection of Sacred Places
June 4, 2002

Aloha Mr. Chairperson and members of the Senate Indian Affairs Committee, my name is Noa Emmett Aluli and I am physician in primary care on the Hawaiian island of Moloka'i, the Medical Executive Director of Moloka'i General Hospital, a founding leader of the Protect Kaho'olawe 'Ohana and Fund, the past vice chair of the Kaho'olawe Island Conveyance Commission, and the past chairperson of the Kaho'olawe Island Reserve Commission. Thank you for the opportunity to testify this morning before this committee regarding the protection of "Wahi Pana" or Hawaiian Sacred Places.

I would like to share the mana'o or thoughts of Hilo historian Edward Kanahele, the late husband of master kumu hula Pualani Kanaka'ole, on "Wahi Pana" or Hawaiian Sacred Places, to more fully describe the significance and meaning of such places to Native Hawaiians:

The sacred places of Hawai'i, or wahi pana of Hawai'i, were treated with great reverence and respect. These are places believed to have mana or spiritual power.

For native Hawaiians, a place tells us who we are and who is our extended family. A place gives us our history . . . and the history of our ancestors . . . a place gives us a sense of well being.

A wahi pana is a place of spiritual power, which links Hawaiians to our past and our future.

Our ancestors honored the earth and life as divine gifts of the gods. In fishing and farming wahi pana were respected. Their activities never encouraged or allowed overuse of the resources of the land or the sea. To do so would dishonor the gods. 'The earth must not be desecrated,' is a native Hawaiian value.

The inventory of sacred places in Hawai'i includes the dwelling places of the gods, the dwelling places of their legendary kahuna, temples, and shrines, as well as selected observation points, cliffs, mounds, mountains, weather phenomena, forests, volcanoes, [lava tubes, pu'uhonua or places of refuge and burial sites] . . .

All wahi pana need our protection and our respect - not only for their historical significance, but also for their human significance. (Edward Kanahele in Ancient Sites of Oa'ahu by Van James, 1991, pp. ix-xiii)

Today, Kaho'olawe, is helping our present generation understand the importance of respecting and honoring our traditional wahi pana.

For 18 years, beginning in 1976, the Protect Kaho'olawe 'Ohana led the Native Hawaiian and general public protest to end the desecration of Kaho'olawe. 'Ohana members persevered to oversee the Island's cultural and natural resources despite personal and collective sacrifices.

In 1980 the role of the Protect Kaho'olawe 'Ohana as Ke Kahu O Ka 'Aina or steward of the Island was acknowledged in a court ordered Consent Decree with the U.S. Navy. The entire island of Kaho'olawe was listed as a historic property on the National Register of Historic Places. We were allowed access to the Island for religious, cultural, educational and scientific activities. Since then, the 'Ohana has taken over 14,000 visitors to Kaho'olawe. Our treasured kupuna(elders) and kamali'i(children)

from every island join in the re-discovery of our sacred island. We re-dedicate our ancestors' shrines, temples and places to conduct religious ceremonies; we clear access routes to these places; and we care for and protect burial sites. The 'Ohana conducts the annual celebration of Makahiki or harvest ceremonies to Lono, god of agriculture, across the island each November and January.

Through the course of this spiritual journey, an entirely new image of Kaho'olawe as a sacred island has emerged. According to Native Hawaiian kupuna, the island was originally named, Kanaloa, the name of the Hawaiian god of the ocean. Hawaiian ancestors respected the island as a physical manifestation of Kanaloa. It is the only island in the Pacific named for a major god. It was also named Kohemalamalama o Kanaloa that can be translated as the shining birth canal or refuge of Kanaloa; or as the southern beacon of Kanaloa. Both names link the island to its role as a traditional center for the training of celestial navigation between Hawai'i and Tahiti.

Finally, on October 22, 1990, President George Bush directed the Secretary of the Navy to discontinue use of the island for bombing and target practice. In November 1993, the U.S. Congress passed and President Bill Clinton signed an act which recognized Kaho'olawe as a national cultural treasure and permanently stopped the use of Kaho'olawe for any military training. On May 9, 1994, the U.S. Navy formally returned the island to the State of Hawai'i.

The experience with Kaho'olawe has led us to understand the importance of expanding the assessment of "wahi pana" to include our activities as Native Hawaiians to provide stewardship over and practice our religion in connection with these places

honored by our ancestors as sacred to our deities. Thus, cultural and environmental impact assessments and studies must include, but not be limited to:

1. Ancestral relationship of Native Hawaiians to "wahi pana" or sacred Hawaiian sites.
2. Necessity of access to "wahi pana" or sacred Hawaiian sites in order to fulfill responsibilities of stewardship.
3. Importance of sustaining the integrity of natural resources as part of the integrity of a sacred site.
4. Importance of sustaining the quality of experience, including view planes and quiet in and around "wahi pana".
5. Whether proposed uses would generate a change in the condition, integrity, use, function, alignments, ownership, boundaries, access to or change in the quality of the experience.

In the course of conducting a cultural impact assessment and study it is necessary to conduct interviews with families and practitioners who have a relationship with and take responsibility for the "wahi pana" or sacred place. These families and practitioners must also be parties to any joint use agreements or memoranda of understanding that may guide the future use of the particular sacred place. Such agreements must allow for the families and cultural practitioners to have access to the "wahi pana" in order to monitor, care for, protect and sustain a relationship with the sacred place.

I am hopeful that these suggestions can be considered in strengthening the protection of sacred places in federal law.

Finally, these hearings are timely in that the Smithsonian Asian Pacific American Program is presenting, from June 5 through September 2, the exhibit "Kaho'olawe: Rebirth of a Sacred Hawaiian Island" at the Arts and Industries Building on the National Mall. This comprehensive exhibit tells Kaho'olawe's unique story - from its legendary beginnings to current efforts of protection and revitalization. Finally, after an 18-year struggle (1976-1994) to reclaim sacred Hawaiian land, Kaho'olawe has been recognized as an important national treasure for restoration into a cultural reserve, and we mahalo (thank) you for the recognition and support of the wahi pana Kaho'olawe Kanaloa.

WRITTEN COMMENTS TO COMMITTEE ON INDIAN AFFAIRS

Submitted by Leonard Selestewa

President, Black Mesa Trust

I. INTRODUCTION

My name is Leonard Selestewa. I am a farmer from the Village of Moenkopi, on the Hopi Reservation in northern Arizona.

Thank you for giving us the opportunity to appear in front of this Committee.

We're deeply appreciative because the matter that we come here to address is so important to the Hopi people: water.

I appear here today with my father, Elliott Selestewa and my uncle, Gilbert Naseyowma, on behalf of agricultural allottees, in particular, farmers of the Village of Moenkopi, whose livelihood and way of life has revolved around water for hundreds of years.

We will address four subjects in our brief remarks to you today:

1. The meaning of water to the Hopi people.
2. The trust responsibility of the federal government to protect the Hopi people and the scarce water supply on which their livelihood and way of life depends: in this instance, the responsibility of making sure that the water flows to the farmers of Moenkopi, as it had for years before coal was mined on Black Mesa.
3. The failure of government agencies – OSM and Army Corps of Engineers in particular – to fulfill that responsibility.
4. And, the loss that we Hopi farmers in Moenkopi have suffered as a result.

II. THE MEANING OF WATER TO THE HOPI PEOPLE

It is no accident that the Hopi people came to settle and have lived on Black Mesa, in the high desert country of Northern Arizona, for thousands of years.

Upon their emergence to this new fourth world, the Hopi were directed by their deity, Masaw, to live on Black Mesa, which is shaped like a hand pointed downward from northeast to southwest. Black Mesa itself is thus sacred to the Hopi people.

Masaw gave us just three things to live a simple, yet sustainable and responsible life in the high desert: a bag of corn seeds, a planting stick and a gourd of water. Thus, the Hopi culture and religion is one of stewardship; a responsibility to take care of mother earth, and her life's blood: water.

Water is a sacred part of a covenant of stewardship the Hopi people made with the deity, Masaw. Yes, water is, of course, a necessity, especially in the desert, but just as important, it is sacred. It gives life to corn. Corn is not only a food staple, corn meal is the first thing that touches a baby's lips, and the last thing upon which a man or woman is laid to rest when they die.

III. THE GOVERNMENT'S TRUST RESPONSIBILITY TO PROTECT THE HOPI PEOPLE AND THE WATER THAT IS CENTRAL TO THEIR WAY OF LIFE.

I know that as members of the Indian Affairs Committee, you are well aware of the trust responsibility the federal government undertook years ago to protect the welfare of Indian peoples -- so, I will not belabor the point.

In this instance the government's responsibility translates to an obligation to minimize the impact of coal mining on Black Mesa on the flow of water to the Moenkopi farmers.

We are here today, Senators, to say to you that there has been a failure of government agencies charged with responsibility to protect the scarce surface waters of Black Mesa: The Office of Surface Mining and Reclamation Enforcement, and the U.S. Army Corps of Engineers, and the U.S. EPA as well.

Over the three decades that the Peabody Coal Company has been mining coal on Black Mesa, literally hundreds of water impoundments or dams have been built. These impoundments hold back millions of gallons of water, that would have flowed down the Moenkopi Wash from the higher elevations of Black Mesa to the farmers of Moenkopi. Much of this water has been wasted by being allowed to evaporate into the dry desert air. The Hopi farmers at Moenkopi have been denied this precious and sacred resource.

OSM: In testimony before OSM, one of the agency's hydrologists, Steve Parsons, stated unequivocally that the impoundments have significantly impacted the surface water flow. We would request that Mr. Parsons's testimony be made a part of the record.

Nevertheless, OSM issued a permit without studying the mine's impacts on surface water flows to down stream users, including the farmers at Moenkopi.

To this day, the OSM has taken no action to ensure that coal mining activities on Black Mesa are conducted in a way that minimizes its impacts on surface water flows.

Instead, OSM informed us that the management of impoundments as they affect surface water flow outside the mine lease area is the responsibility of the U.S. Army Corps of Engineers.

Of course, water does not stop flowing at lease boundaries. The farmers of Moenkopi live outside the boundary of Peabody's mining lease, but they have lost the water that used to flow through Moenkopi Wash.

When we spoke with representatives of the Army Corps, we were told that management of the impoundments built in connection with mining activities was the responsibility of OSM.

Page 3 of 4

The Army Corps allowed Peabody to build water impoundments and operate under a generic Nationwide Permit (#21) rather than an individual permit designed to address the unique circumstances of surface water flow in the high desert of Black Mesa.

The Hopi Tribal Council expressed its concern about the issuance of a Nation Wide Permit on at least two occasions.

We submit a policy statement of the Hopi Tribal Council, comments of the Hopi Tribal Council and a letter written by the firm of Arnold & Porter to the Secretary of the Interior on the Council's behalf, and would ask that those documents be made part of the record of this hearing.

But, even the generic Nation Wide permit requires Peabody to take all practicable steps to minimize impacts of mining activities on pre-construction flows and the aquatic system that depends on it. (See paragraphs 21 and 22).

But, for decades, Peabody has been allowed to maintain hundreds of impoundments, holding millions of gallons of water, without ever releasing the water (after treating it, as the Army Corps permit and the EPA 401 certification letter requires). In other words, the Nationwide Permit has been continuously violated and has never been enforced.

Thus, neither OSM nor the Army Corps, nor the EPA for that matter, has accepted responsibility for the impacts of the water impoundments on the farmers of Moenkopi.

The failure of any agency to accept responsibility to protect surface water flows has, of course, been of great concern to the Hopi farmers who hold agricultural allotments at Moenkopi.

The impacts of Black Mesa mining on the flow of surface water have also been a serious concern for the U.S. Fish & Wildlife Service. In 1993, U.S. Fish & Wildlife Service submitted a letter to the U.S. Army Corps, expressing its concerns. We submit a copy of the letter from the U.S. Fish & Wildlife Service and would ask that those documents be made part of the record of this hearing.

As far as we know, the concerns expressed by the U.S. Fish & Wildlife Service as well as the concerns expressed by the Hopi people have been left unaddressed.

IV. IMPACTS OF THE IMPOUNDMENTS

Elliott Selestewa: Before & After

Gilbert Naseyowma: Before & After

We would ask that a statement by Dr. Abraham Springer, a hydrologist and associate professor at Northern Arizona University.

V. WE LEAVE YOU WITH A QUESTION: WHY?

We leave you then with the following question: Why?

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Why has there been a failure of responsibility?

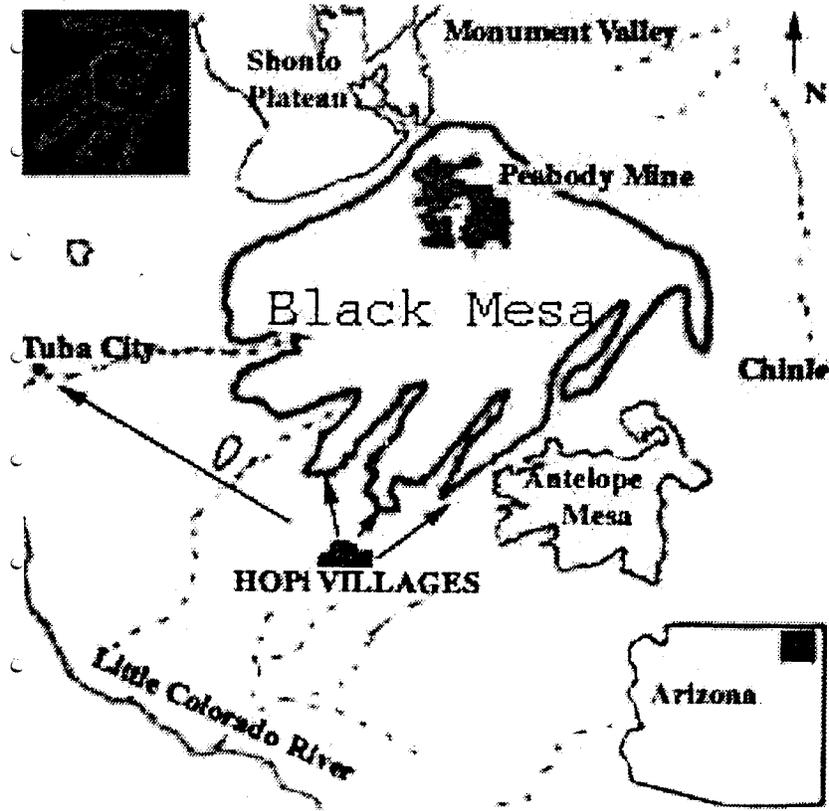
Why has the government failed to protect the Hopi people's most precious and sacred resource: water?

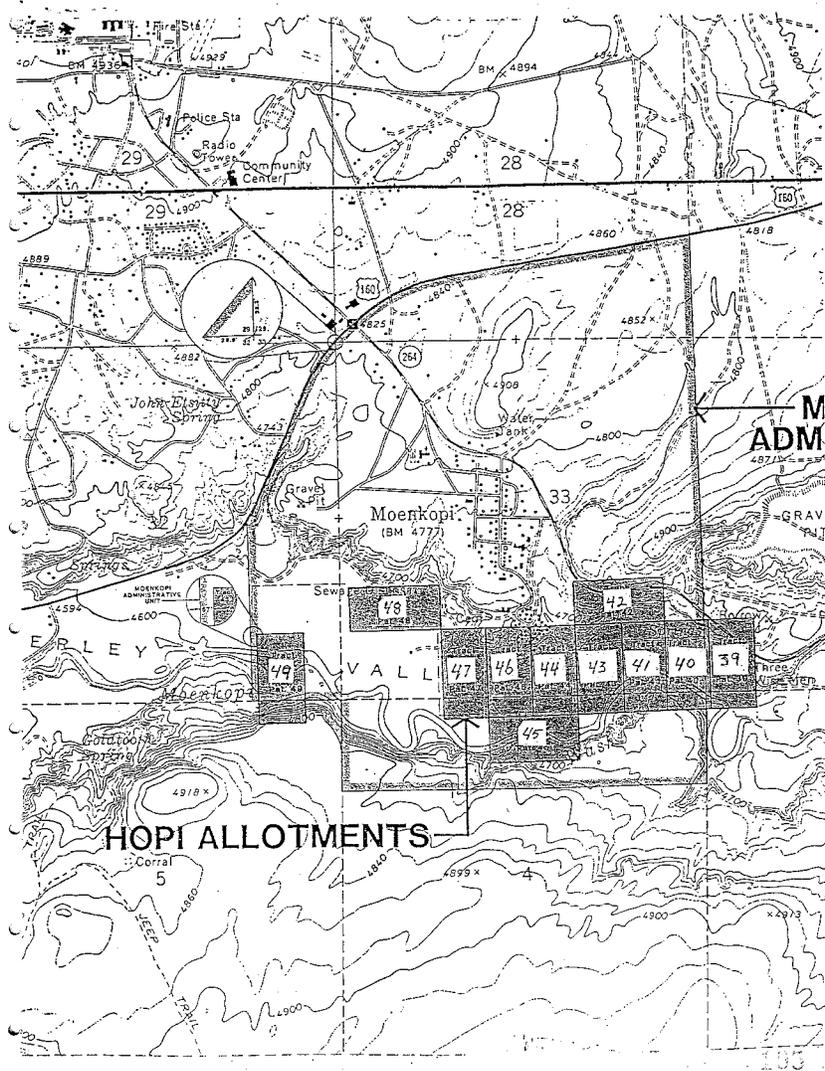
Why has the government allowed scarce trust resources to be wasted?

We ask this Committee for help in finding out the answer to this question of WHY.

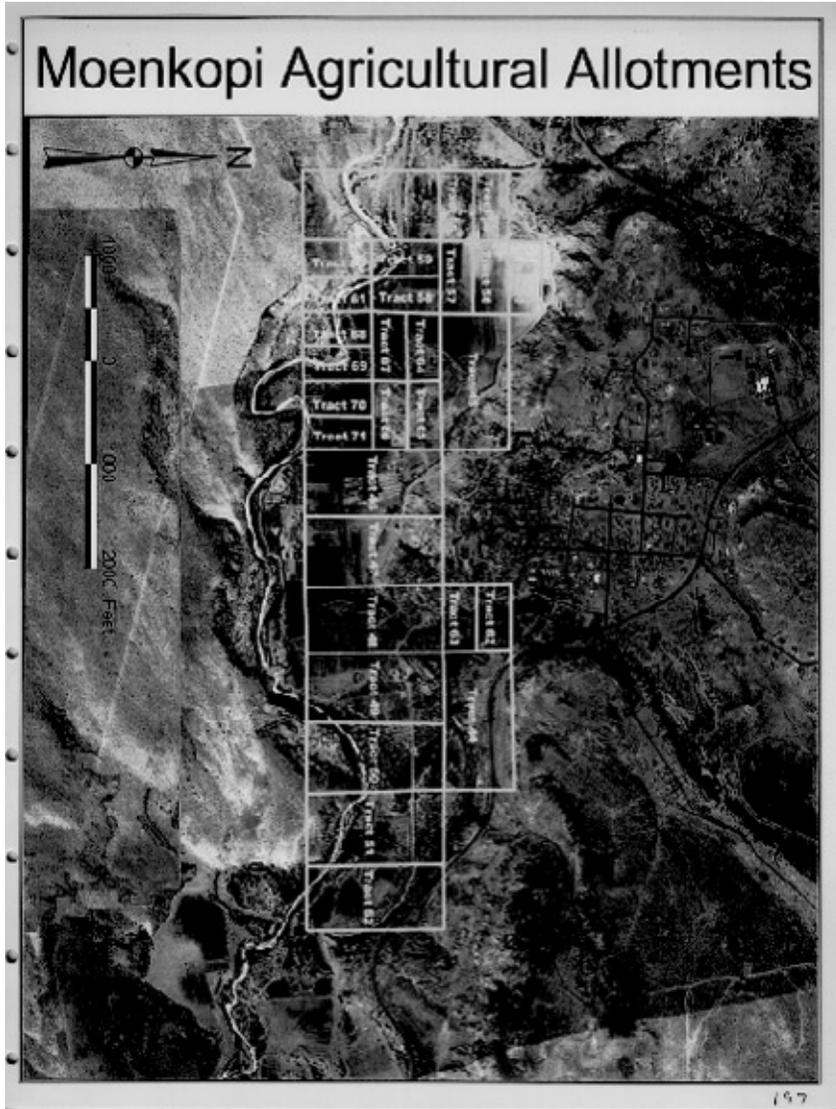
We invite each member of the Committee to visit Moenkopi and see for yourself.

Thank you again for the opportunity to speak to you.





<u>Allotment No.</u>	<u>Name</u>	<u>Description</u>
49	Nah-she-nimpe-wah (Male - Hopi)	W/2 of SE/4 of SE/4 32-32-11; cont. 20 acres
50	GA-maun-bit-se (Female - Navajo)	NW/4 of NE/4 of SE/4, & SW/4 of SE/4 of NE/4 32-32-11; cont. 20 acres
51	Charley Itz-ze-tee (Male - Navajo)	S/2 of SW/4 of NE/4, & NW/4 of SE/4 32-32-11; cont. 60 acres
52	Hosteon Clitsoey (Male - Navajo)	SW/4 of SE/4 32-32-11; cont. 40 acres
53	Shoie-Noalithi (Male - Navajo)	NE/4 of SW/4 32-32-11; cont. 40 acres
54	Ich-cla-clal-pah-don-ne (Male - Navajo)	SE/4 of SW/4 32-32-11; cont. 40 acres



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THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 22, 1904, whereby it appears that Frank Shumpton an Indian of the Yaqui tribe or band has

been allotted the following described land: West half of the South West quarter of the South West quarter of Section thirty four in Township thirty two South of Range Seven East of Tenth and Salt River Meridian in Arizona containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Frank Shumpton

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Frank Shumpton or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: Provided, That the President of the United States may, in his discretion, extend the said period

In testimony whereof, William Howard Taft President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

GIVEN under my hand at the City of Washington, this twenty third day of May, in the year of our Lord one thousand nine hundred and five, and of the Independence of the United States the one hundred and twenty ninth



By the President: W. H. Taft

By L. H. Beach Secretary of the General Land Office

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2

THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 22, 1904, whereby it appears that Palehongera

an Indian of the Indogon tribe or band has been allotted the following described land: the East half of the North East quarter of the South East quarter of Section thirty three in Township thirty two North of Range eleven East of the meridian seven meridians Arizona, containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Palehongera

the land above described, and hereby declares that it does not will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Palehongera

and in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: Provided, That the President of the United States may, in his discretion, extend the said period.

In testimony whereof, William Howard Taft President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

Given under my hand at the City of Washington, this twenty third day of May in the year of our Lord one thousand nine hundred and four and of the Independence of the United States the one hundred and thirty seventh

By the President W. Howard Taft

E. M. Keane Secretary

W. H. Smith Secretary of the General Land Office

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Hopi

THE UNITED STATES OF AMERICA

In all its power (this document) and...

Whereas, there has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 15, 1907 whereby it appears that Lay-toke-She an Indian of the Mosque tribe or band has been allotted the following described land, the West half of the South East quarter of the South East quarter of Section thirty-three in Township thirty-two North of Range eleven East of Gila and Salt River Meridian in Arizona containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Lay-toke-She

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Lay-toke-She or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: *Provided*, That the President of the United States may, in his discretion, extend the said period

In testimony whereof, I Theodore Roosevelt, President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

Given under my hand at the City of Washington, this twenty third day of May, in the year of our Lord one thousand nine hundred and five and of the Independence of the United States the one hundred and twenty-ninth

By the President: Theodore Roosevelt

By F. M. McKean Secretary,
G. H. Brush Recorder of the General Land Office

42

THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 23 1906, whereby it appears that Gay She wah

an Indian of the Maricopa tribe or band has been allotted the following-described land: the South East quarter of the North West quarter of the South East quarter and the South West quarter of the North East quarter of the South East quarter of Section thirty-three in Township thirty-two North of Range eleven East of Tila and Salt River Meridian in Arizona, containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Gay She wah

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Gay She wah or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: *Provided*, That the President of the United States may, in his discretion, extend the said period.

In testimony whereof, I, Theodore Roosevelt, President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

GIVEN under my hand at the City of Washington, this twenty-third day of May, in the year of our Lord one thousand nine hundred and five, and of the Independence of the United States the one hundred and twenty-ninth.

By the President: T. Roosevelt

By L. M. McKean Secretary
L. H. Bensch Recorder of the General Land Office

20

43

THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 29, 1904, whereby it appears that Sh-con-er-shie

an Indian of the Maricopa tribe or band has

been allotted the following described land, the East half of the South West quarter of the South East quarter of Section thirty-three in Township thirty-two North of Range eleven East of T14a and Salt River Meridian in Arizona, containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Sh-con-er-shie

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Sh-con-er-shie or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust; and free of all charge or incumbrance whatsoever: *Provided*, That the President of the United States may, in his discretion, extend the said period

In testimony whereof, I, Theodore Roosevelt, President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

Given under my hand at the City of Washington, this twenty third day of May, in the year of our Lord one thousand nine hundred and five, and of the Independence of the United States the one hundred and twenty ninth

By the President: T. Roosevelt

By E. M. McLean Secretary.

E. H. Smith
Recorder of the General Land Office

20

44

THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 23, 1906, whereby it appears that Wah she de wee

an Indian of the Moqui tribe or band has been allotted the following-described land, the West half of the South West quarter of the South East quarter of Section 33 in Township thirty-two North of Range eleven East of Gila and Salt River Meridian in Arizona, containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Wah she de wee

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Wah she de wee or in case of her decease, for the sole use of her heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or her heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: Provided, That the President of the United States may, in his discretion, extend the said period.

In testimony whereof, I Theodore Roosevelt, President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

Given under my hand at the City of Washington, this twenty-third day of May, in the year of our Lord one thousand nine hundred and five, and of the Independence of the United States the one hundred and twenty-ninth

By the President: T. Roosevelt
By J. M. De Haven Secretary
W. H. Bush Recorder of the General Land Office

50

40

THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 22, 1906, whereby it appears that Se-wil-tah-mah

an Indian of the Maricopa tribe or band has been allotted the following described land, the north West quarter of the North West quarter of the North East quarter and the north East quarter of the North East quarter of the North West quarter of Section four in Township thirteen North of Range eleven East of Tola and Salt River Meridian in Arizona, containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Se-wil-tah-mah

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Se-wil-tah-mah or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: *Provided*, That the President of the United States may, in his discretion, extend the said period

In testimony whereof, I, Theodore Roosevelt, President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

Given under my hand at the City of Washington, this twenty third day of May, in the year of our Lord one thousand nine hundred and five, and of the Independence of the United States the one hundred and twenty ninth

By the President: T. Roosevelt

By L. M. McKean Secretary,
H. W. Bush Recorder of the General Land Office

46

THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 22, 1914, whereby it appears that Lo man quap te wah an Indian of the Mogai tribe or band has been allotted the following described land, the East half of the South East quarter of the South West quarter of Section thirty three in Township third two North of Range eleven East of Tila and Salt River meridians in Arizona, containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Lo man quap te wah

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Lo man quap te wah or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: *Provided*, That the President of the United States may, in his discretion, extend the said period.

In testimony whereof, I Theodore Roosevelt, President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

GIVEN under my hand at the City of Washington, this twenty third day of May, in the year of our Lord one thousand nine hundred and five and of the Independence of the United States the one hundred and twenty ninth

By the President: T. Roosevelt
F. M. McKean
C. R. Brant

20

47

THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 23, 1904, whereby it appears that Charley Ya-lah-me-na-wah

an Indian of the Maricopa tribe or band has been allotted the following described land, the west half of the south quarter of the south west quarter of Section thirty-three in Township thirty-two North of Range eleven East of Tule and Salt River meridians in Arizona, containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Charley Ya-lah-me-na-wah

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Charley Ya-lah-me-na-wah or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: *Provided*, That the President of the United States may, in his discretion, extend the said period

In testimony whereof, Theodore Roosevelt President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

GIVEN under my hand at the City of Washington, this twenty-third day of May, in the year of our Lord one thousand nine hundred and five, and of the Independence of the United States the one hundred and thirty-ninth

By the President: T. Roosevelt

By F. M. J. Keen Secretary

Le. Ho. Bruch Recorder of the General Land Office

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48

THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 23, 1904, whereby it appears that Toh wah min toh wah

an Indian of the Moqui tribe or band has been allotted the following described land, the South half of the North West quarter of the South West quarter of Section thirty three in Township thirty two North of Range eleven East of Gila and Salt River Meridian in Arizona, containing twenty acres.

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Toh wah min toh wah

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Toh wah min toh wah

or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever:

Provided, That the President of the United States may, in his discretion, extend the said period. Provided That the President of the United States may, in his discretion, extend the said period.

In testimony whereof, I, Theodore Roosevelt, President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

GIVEN under my hand at the City of Washington, this twenty third day of May, in the year of our Lord one thousand nine hundred and five, and of the Independence of the United States the one hundred and twenty ninth.

By the President: T. Roosevelt

By F. M. McKean Secretary G. H. Brush Recorder of the General Land Office

20

49 THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Whereas, There has been deposited in the General Land Office of the United States a schedule of allotments approved by the Secretary of the Interior July 23, 1904, whereby it appears that Isah she nimphie wah

an Indian of the Mogon tribe or band has been allotted the following-described land, the West half of the South East

quarter of the South East quarter of Section thirty-two in Township thirty-two North of Range Seven East of Hills and Dells River Meridian in Arizona, containing twenty acres

Now know ye, that the United States of America, in consideration of the premises, has allotted, and by these presents does allot, unto the said Isah she nimphie wah

the land above described, and hereby declares that it does and will hold the land thus allotted (subject to all statutory provisions and restrictions) for the period of twenty-five years, in trust for the sole use and benefit of the said Isah she nimphie wah or in case of his decease, for the sole use of his heirs, according to the laws of the State or Territory where such land is located, and that at the expiration of said period the United States will convey the same by patent to said Indian, or his heirs, as aforesaid, in fee, discharged of said trust and free of all charge or incumbrance whatsoever: *Provided*, That the President of the United States may, in his discretion, extend the said period.

In testimony whereof, I, Theodore Roosevelt, President of the United States of America, have caused these Letters to be made Patent and the Seal of the General Land Office to be hereunto affixed.

GIVEN under my hand at the City of Washington, this twenty-third day of May, in the year of our Lord one thousand nine hundred and five, and of the Independence of the United States the one hundred and twenty-ninth

By the President: T. Roosevelt

By H. P. M. Kern Secretary,
G. H. Branch Recorder of the General Land Office

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Steve Parsort Quote

ARNOLD & PORTER

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HARRIS D. SHERMAN
DIRECT LINE: (303) 863-2347

April 23, 1991



Via Telecopier

Vijai N. Rai, Ph.D.
Chief, Mineral Resources Division
Office of Environmental Affairs
Office of the Secretary
U.S. Department of the Interior
Washington, D.C. 20240

Re: Analysis of the Impacts That the Surface
Impoundments Have on Moenkopi Wash

Dear Dr. Rai:

Attached, as promised, is a brief description of the analysis that the Hopi Tribe is requesting be completed on the impacts that Peabody Coal Company's surface impoundments have on Moenkopi Wash and the water available to the Hopi Tribe downstream.

As you will see, the analysis would focus on the impact that the impoundments at the Black Mesa/Kayenta Mine have on Moenkopi Wash, including the extent to which they increase evaporative loss, diminish downstream recharge, and reduce downstream alluvial water levels and surface flows. It would entail a fresh, objective analysis of existing data, but not necessarily new field work. Hydro Geo Chem, an environmental firm that helped to prepare the description, estimates that it would cost about \$100,000 to \$150,000 and could be completed within two years.

As we explained at last week's meeting, further analysis of the impoundments is necessary to evaluate the impact of Peabody's mining operations on the hydrologic system for the purpose of deciding whether to issue a new permit for the Black Mesa Mine. The decision whether to issue a new permit remains the fundamental issue facing the Interior Department: that is what the pending water study will be used for. Under

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Vijai N. Rai, Ph.D.
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Sections 507 and 510 of the Surface Coal Mining Control and Reclamation Act, 30 U.S.C. §§ 1257 and 1260, as well as Section 102 of the National Environmental Policy Act, 42 U.S.C. § 4332(2)(E), the Secretary must look at all hydrologic impacts in making this decision, including impacts to both surface and ground water. Furthermore, the surface and ground water systems are interconnected in that, downstream from the impoundments, the N-aquifer discharges into Moenkopi Wash and Moenkopi Wash helps to recharge the N-aquifer. Thus, from a technical standpoint the two should not be segmented.

The need for further study of the impoundments was highlighted in testimony at the recent hearing in Peabody Coal Co. v. Office of Surface Mining Reclamation and Enforcement, No. TU 90-2-PR (U.S. Dep't. of Int., Hearings Div.). At that hearing, Steve Parsons, a hydrologist for the Office of Surface Mining, testified on behalf of the Interior Department and in support of special condition 12 to the Kayenta permit, which requires Peabody, among other things, to release water from the impoundments and document the effect of such releases. The condition itself evidences the need for further analysis of the impoundments and was imposed, in part, for that purpose. As Mr. Parsons explained:

"There was a general concern [by OSM] that the . . . hydrologic conclusions that were drawn [regarding the impoundments] were not totally or as well refined as they should be.

* * * *

There are two main goals [of special condition no. 12]. One is to maintain the hydrologic status quo, if you will, with respect to the impoundments of the water that they're containing in an effort to pass that water on downstream, as well as to better define or refine the effects of those impoundments on the overall hydrologic system, and thereby reduce the impacts on the hydrologic balance.

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* * * *

"When I say there's a limited amount of data, its pointed at the issue of the effects of the impoundments, and the way it was characterized to me in my question of Keith [another hydrologist for the Office of Surface Mining] this was probably the most limited portion of the entire CHIA, that part that's dealing with the effects of the impoundments downstream and alluvium and that sort of theory."

Transcript at 362, 367, & 566-67.

In addition, Mr. Parsons testified that the existing data indicates that the impoundments are affecting downstream surface flows within Moenkopi Wash. At one point during his testimony, the following colloquy took place:

"Q. Does the CHIA, in your opinion, support the imposition of Special Condition 12?

A. Yes, I believe it does.

Q. How?

A. By projecting a depletion in surface water downstream of the proposed mining operation or the mining operation.

Q. Downstream users would have less water available?

A. That's right."

Transcript at 373-74.

Unfortunately, condition 12 is limited by its terms to the Kayenta Mine, provides little detail on the additional analysis to be undertaken, and has been

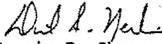
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 Page 4

appealed by Peabody and the Navajo Tribe. Thus, at present, there is no assurance that it will ultimately provide an effective mechanism for addressing this issue.

In closing, we wish to extend again our appreciation for the attendance by you, George Farris, and Larry Roberts at last week's water study meeting. We also wish to reiterate our belief that all parties, including not only the Hopi Tribe and the Interior Department, but Peabody and the Navajo Nation as well, will be best served by a comprehensive analysis of the water issues which resolves, once and for all, the impacts of the impoundments as well as the impacts of the groundwater pumping.

Very truly yours,


 Harris D. Sherman
 David S. Neslin

Attachment

cc w/attachment:
 Mr. Vernon Masayeva ✓

bcc w/attachment:
 Mr. Arnold Taylor
 Harry R. Sachse, Esquire

April 23, 1991

Investigation of Surface Water Impoundment Impacts

- A. Locate and compile existing data regarding streamflow, alluvial and Wepo aquifers, surface water impoundments, vegetation cover, and meteorology within the study area, including but not limited to the following:
1. Existing streamflow measurements, both continuous record and crest stage measurements on and downstream of the leasehold from the USGS, Peabody Coal Company, U.S. Army Corps of Engineers, and other sources for complete periods of record, and all existing analyses including flood-flow duration, frequency and trend analyses, and statistical summaries, rainfall-runoff modeling results, and other pertinent documents.
 2. Existing data on the channel alluvium and alluvial aquifer including channel geometry (width, depth, materials, roughness, etc.), alluvial aquifer water levels, locations of perennial or intermittent reaches, springs, and seeps, alluvial aquifer geometry from resistivity surveys and well logs, data and results from aquifer tests, seepage or transmission loss studies, particle size analyses, core and materials tests, estimates of transmissivity, hydraulic conductivity, and porosity and storativity.
 3. Existing data on the Wepo Formation and Wepo aquifer including structure contours, lithology, fractures and faulting, water levels, flow patterns, rates, and contribution from secondary porosity, locations of springs and seeps, data and results from aquifer tests, pit seepage studies, particle size analyses, and core and materials tests, and estimates of transmissivity, hydraulic conductivity, porosity, and storativity.
 4. Existing information on Peabody Coal Company's surface water impoundments including design and as-built specifications, capacities, stage-area-volume relationships,

liner type and installation, sealing, stage and inflow measurements and schedules, evaporative loss estimates, frequency and volume of releases, operational uses, and sediment removal.

5. Existing vegetation cover information including cover types, density, trends, current and historical land uses, disturbed areas, rooting depths, and estimates of evapotranspiration rates.
 6. Existing meteorological data and analyses including rainfall, snowfall and snowmelt, event type, duration, intensity and spatial distribution, and tree ring data and analyses.
- B. Perform appropriate modeling to quantify the impact of Peabody Coal Company's surface water impoundments to rainfall-runoff relationships, distribution and magnitude of alluvial recharge, and occurrence and persistence of surface water at the following locations along Moenkopi Wash: the mine leasehold area; the boundary of the Hopi Partitioned Lands; through Blue Canyon; and at the Moenkopi villages. Individual tasks should include the following:
1. Characterizing pre- and post-mining rainfall-runoff relationships for Moenkopi Wash above the USGS gage stations to include flow duration, peak, volume, frequency, and transmission losses.
 2. Quantifying the components of pre-development and present alluvial aquifer fluxes along Moenkopi Wash to include the degree and extent of recharge from storm flows and Wepo aquifer discharge and develop estimates of transpiration losses.
 3. Developing water budgets for the major impoundments sufficient to quantify inflows, consumptive uses, evaporative losses, and contribution to the downstream alluvial aquifer from seepage through, around, and under the structures.

4. Determining the extent to which the impoundments truncate the alluvial aquifers, increase evaporative losses, diminish recharge to downstream areas, reduce downstream alluvial water levels and surface flows, and impact downstream water users.
- C. Address the adequacy of the existing USGS and Peabody Coal Company monitoring programs, identify additional data requirements and recommend data collection approaches. Recommendations may include the following:
1. Providing recommendations to improve the USGS and Peabody Coal Company surface water monitoring program.
 2. Identifying monitoring approaches to improve detection of impacts to alluvial water levels and water quality.

Department of Geology
Northern Arizona University
Flagstaff, AZ 86011
928-523-7198
abe.springer@nau.edu

June 1, 2002

U.S. Senate
Indian Affairs Committee

Honorable Senators:

This letter is to provide scientific comment on the impact of the impoundments of Peabody Western Coal Company (PWCC) on farmers of the Village of Moencopi along Moencopi Wash, Arizona. I have been a hydrogeologist at Northern Arizona University in Flagstaff, Arizona, since 1994. During these 8 years in Northern Arizona, I have developed an intense scientific interest in the hydrological issues surrounding coal mining by PWCC on Black Mesa, Arizona. I have led numerous class field trips to Black Mesa and Blue Canyon, have used case studies from Black Mesa in all levels of my curriculum and have reviewed the hydrological issues surrounding PWCC's latest application to the Office of Surface Mining (OSM).

My comments and interpretations are based on my own expertise and experience on arid-region hydrology and do not represent the opinions or ideas of Northern Arizona University. I have received no compensation for these comments. These comments are provided by me as an interested citizen with expertise in these issues.

Although PWCC's recent application to OSM indicates that the hydrological impacts of surface impoundments are minimal, I hope to show that this analysis should be reconsidered. The following summary of PWCC's impoundments is from PWCC's own information reported in their recent application to OSM.

- 1) It is estimated that more than 240 sediment ponds and several permanent internal impoundments have been or will be constructed during the life of the mining operation.
- 2) For the period 1996 to 2000 (when PWCC has reported such data), there were an average of 745.8 acre-feet per year (243,000,000 gallons per year) of water impounded in sediment ponds which were unable to flow downstream.
- 3) Because 7 years isn't enough time to describe an average climate condition in the arid Southwest, it is more instructive to see that this amount of impoundment varied between 314 and 1095 ac-ft/yr (102,000,000 and 356,000,000 gallons per year).
- 4) These volumes of impoundment were between 8 and 38 % of the total runoff reported by PWCC at the edge of their lease area in Moencopi Wash.

- 5) These volumes of impoundment were between 9 and 103 % of the adjusted runoff value PWCC has calculated for the USGS stream gaging station at the Village of Moencopi on Moencopi Wash.
- 6) PWCC based their impact analysis on the entire area of the watershed (to the confluence of Moencopi Wash with the Little Colorado River) which is nearly 1,000 mi² larger than the watershed above the Village of Moencopi. By including this much larger area, which contributes very little runoff at lower elevations, PWCC's analyses underestimated the impact. Most of the runoff is contributed from the higher elevations of the watershed on Black Mesa in the PWCC lease area.
- 7) Volumes of impoundment are a greater percentage of total runoff during the driest years, and the least during the wettest years. Therefore, the impact of the impoundments is greatest when stream flow is the lowest.
- 8) Additional mining activities in the new application will increase the number of impoundments and the volume of water to be impounded, further decreasing the flow of Moencopi Wash. These impoundments will further reduce low flows during the driest years with the lowest stream flows.
- 9) By PWCC's own admission, most of this runoff would likely recharge the shallow alluvium and bank deposits of Moencopi Wash downstream of the lease area. This water is not lost from the system but provides very valuable services to support and maintain natural riparian vegetation in these alluvial and bank deposits. Also, some of this water slowly drains from the alluvial and bank deposits after the peak of the flow and lengthens the period of flow after a storm. By impounding the water upstream on the lease area, not only are the peaks of stream flow decreased, but the longer tails of stream flow after a flood from the draining of these streambed deposits is dramatically decreased. I have personally observed this effect after storms in Moencopi Wash.
- 10) Although there may be no flood irrigation on the PWCC lease lands (as indicated in PWCC reports), the bank drainage noted in point # 9 (above), may impact the ability of farmers to conduct flood water irrigation downstream of the PWCC lease area and impoundments.

I recommend that PWCC conduct a much more rigorous analysis of the impacts of their surface impoundments on the flow of Moencopi Wash than the simple analytical methods of analysis currently presented. This would include a detailed transient, numerical, surface-water routing model that accounts for the complicated surface-water/groundwater interactions between runoff and the alluvial deposits and the impacts of impoundments on this flow.

Sincerely,
Abe Springer, Ph.D.
Associate Professor

ABRAHAM E. SPRINGER

Department of Geology
 Northern Arizona University
 P.O. Box 4099, Flagstaff, AZ 86011
 (928) 523-7198; e-mail abe.springer@nau.edu (5/24/02)

EDUCATION

Ph.D. Hydrogeology, The Ohio State University, Columbus, Ohio, 1994.
 M.S. Hydrogeology, The Ohio State University, Columbus, Ohio, 1990.
 B.A. Geology with Departmental Honors, The College of Wooster, Wooster, Ohio, 1987.

PROFESSIONAL POSITIONS**Academic**

Northern Arizona University - Department of Geology, 1999-present
Associate Professor: Taught new University Colloquium, Adv. Environ. Geology
 University of Wisconsin - Madison, Spring 2001
Visiting Associate Professor - sabbatical research
 Northern Arizona University - Department of Geology, 1994-1999
Assistant Professor: Taught classes in Hydrogeology, Ground-Water Flow Modeling,
 Contaminant Hydrogeology, Environmental Geology, Introductory Geology
 The Ohio State University, Department of Geological Sciences, 1989-1994
Graduate Research Associate: Conducted research on wellhead protection, agricultural
 water quality, and tracer tests.
 The Ohio State University - Department of Geological Sciences, 1990
Instructor: Taught Geological Sciences 204, Water Resources.
 The Ohio State University, Department of Geological Sciences, 1987-1989
Graduate Teaching Associate.

Continuing education instruction

HBCU/MIA Consortium (Department of Energy), 1996-present
Lead Instructor: Developed web sites, videotaped 42 lectures each for three
 Environmental Geology web-based courses, taught all three courses via internet.
 Environmental Education Enterprises, 1993-present
Instructor: Teaching "Modeling Techniques for Delineating Capture Zones" 4-day
 professional short course.
 Environmental Education Enterprises, 1995 to present
Instructor: Teaching "Introduction to Physical Processes in Contaminant Hydrogeology"
 3-day professional short course.
 The Association of Ground Water Scientists and Engineers - National Ground Water
 Association, 1992-1993
Instructor: Taught "Capture-Zone Analysis for Contaminant Remediation and Wellhead
 Protection" 4-day short course.

PROFESSIONAL AFFILIATIONS

Sigma Xi (since 1987)
 Assoc. of Ground Water Scientists and Engineers, National Ground Water Assoc. (since 1988)
 Geological Society of America (since 1990)
 American Geophysical Union (since 1990)
 Arizona Hydrological Society (since 1994)
 Arizona Riparian Council (since 1995)
 Society for Ecological Restoration (since 1998)
 International Association of Hydrogeologists (since 2001)

AWARDS

1990 Graduate Research Award, Graduate Research Forum, The Ohio State University
 1988 Outstanding Teaching Associate, Dept. of Geological Sciences, The Ohio State Univ.
 1987 Charles B. Moke Prize in Geology, College of Wooster

PUBLICATIONS**Books**

Bair, E.S., **A.E. Springer**, and G.S. Roadcap, 1992. *CAPZONE - An Analytical Flow Model for Simulating Confined, Leaky Confined, and Unconfined Flow to Wells with Superposition of Regional Water Levels*: International Ground Water Modeling Centers, Colorado School of Mines, Golden, Colorado; TNO Institute of Applied Geoscience, Delft, The Netherlands, 193 p.

Journal articles (peer reviewed)

Stevens, L.E., T.J. Ayers, J.B. Bennett, K. Christiansen, M.J.C. Kearsley, V.J. Meretsky, A.M. Phillips, R.A. Parnell, J. Spence, M.K. Sogge, **A.E. Springer**, D.L. Wegner, 2001. Planned flooding and Colorado River riparian trade-offs downstream from Glen Canyon Dam, Arizona. *Ecological Applications*, 11(3):701-710.

A.E. Springer, Wright, J.M., P.B. Shafroth, J.C. Stromberg, D.T. Patten, 1999. Coupling ground-water and riparian vegetation models to simulate riparian vegetation changes due to a reservoir release, *Water Resources Research*, v. 35, no. 12, pp. 3621-3630.

L.E. DeWald and **A.E. Springer**, 1999. Riparian restoration improves a rare Bebb willow community (Arizona), *Ecological Restoration: North America*, v. 17, no. 4, pp. 233-234.

Springer, A.E., W.D. Petrouson, B.A. Semmens, 1999. Spatial and temporal variability of hydraulic conductivity in active reattachment bars of the Colorado River, Grand Canyon, *Ground Water*, vol. 37, no. 3, pp. 338-344.

Springer, A.E. and E.S. Bair, 1998. Natural-gradient tracer test using bromide, atrazine, and alachlor in a high-organic carbon aquifer, *J. of Environmental Quality*, 27:1200-1208.

Springer, A.E., E.S. Bair, and D. Beak, 1996. Natural gradient, surface-applied tracer test at the Ohio Management Systems Evaluation Area, *Environmental and Engineering Geoscience*, v. 2, no. 4. pp. 453-464.

Jagucki, M.L., C.D. Finton, **A.E. Springer**, and E.S. Bair, 1995. *Hydrogeology and water quality at the Management Systems Evaluation Area near Piketon, Ohio*, U.S. Geological Survey Water Resources Investigation Report 95-4139, 117 p.

Springer, A.E. and E.S. Bair, 1992. Comparison of methods used to delineate capture zones of wells: 2. Stratified-Drift Buried-Valley Aquifer, *Ground Water*, v.30, p. 908-917.

Bair, E.S., **A.E. Springer**, G.S. Roadcap, 1991. Delineation of traveltime-related capture areas of wells using analytical flow models and particle-tracking analysis, *Ground Water*, v.29, p. 387-397.

Springer, A.E. and E.S. Bair, 1990. The effectiveness of semianalytical methods for delineating wellfield-protection areas in stratified-drift valley aquifers, *Ground Water Management*, v.1, p. 413-429.

Conference proceedings (peer reviewed)

Schlinger, C.M. and **A. Springer**, 2002. Navajo Aquifer Water Supplies for the Kayenta Community School, in *Fractured-Rock Aquifers 2002*, National Ground Water Association, Westerville, OH, pp. 32-35.

Springer, A.E. and E.S. Wilson, 2000. Sustaining ecosystems and cultures dependent on springs of the Grand Canyon, USA. in *Groundwater: Past Achievements and Future Challenges*, Sillio *et al* (eds.), Balkema, Rotterdam, Netherlands, pp. 1047-1051.

DeWald, L.E. and **A.E. Springer**. 2000. Balancing cultural, aesthetic, wildlife, and recreation of a rare, high-elevation Bebb willow riparian community, General Technical Report XXX, Rocky Mountain Research Station, USDA.

DeWald, Laura, **A.E. Springer**, Ch.C. Avery, 1998. Attempts to restore spring discharge and soil-moisture patterns which determine the survival of a rare plant community in Arizona, USA. American Institute of Hydrology/International Association of Hydrogeologists, International Conference, September 27-October 2, 1998, Las Vegas, NV, p. 379-383.

Springer, A., S. Bair, and D. Beak, 1993. Transport of atrazine, alachlor, and nitrate relative to the tracer bromide at the Ohio Management Systems Evaluation Area, in *proceedings of the Agricultural Research to Protect Water Quality Conference*, Minneapolis, Minnesota, Soil and Water Conservation Society, Ankeny, Iowa, p. 102-104.

Journal articles in press (peer reviewed)

Book chapter

Kreamer, D.K. and A.E. Springer, The Hydrology of Desert Springs in North America, in Spring Ecosystems of the North American Deserts: Ecology, Hydrology, and Conservation

Field trip guides (peer reviewed)

Springer, A.E. and D. Bills, 1998. Exploration for and ecological importance of shallow and deep ground-water around San Francisco Mountain, in Geological Excursions in Northern and Central Arizona, Field trip guidebook for Geological Society of America, Rocky Mountain Section Meeting, Flagstaff, Arizona, May 1988, ed. Duebendorfer, E., p. 27-34.

Book reviews (peer reviewed)

Springer, A.E., 1999. Perspectives on Sustainable development of Water Resources in Kansas by Marios Sophocleous, ed., *Geotimes*, v. 44, no. 4, p. 39.

Springer, A.E., 1998. Applied Ground-Water Hydrology and Well Hydraulics by Michael Kasenow, *Ground Water*, v. 36, no. 6, p. 869.

Journal articles in review

S. Kelly and A.E. Springer, in review. Ephemeral recharge mechanisms for a deep, fractured sedimentary rock aquifer in an arid to semi-arid environment.

Springer, A.E., J.A. Kessler, E.S. Wilson, Coupling Traditional Cultural Information and Flow Models for Aquifer Management,

Journal articles in preparation

Amentt, M., A.E. Springer, T.E. Kolb. Transpiration rates of herbaceous understory in a pine forest, Journal to be determined, to be submitted.

Springer, A.E. and G.M. Mann. Fault and fracture analysis for determining ground-water flow in deep bedrock aquifers, *Water Resources Research*, to be submitted.

ABSTRACTS IN REVIEW

Flora, S. and A. Springer, AHS abstract

Mullen, G., A. Springer, AHS abstract

ABSTRACTS OF PRESENTATIONS IN PRESS (all peer reviewed)

ABSTRACTS OF PRESENTATIONS PUBLISHED (all peer reviewed)
(2002 4; 2001 4; 2000 12; 1999 9; 1998 7; 1997 9; 1996 5; 1995 3; 1994 1)

Sabol, T., **A. Springer**, P. Umhoefer. 2002. Affect of the Sevier-Toroweap fault on groundwater modeling of the Kaibab Paiute Reservation, Northern Arizona, annual meeting, Geological Society of America, Rocky Mountain Section, Cedar City, UT.

Springer, A. 2002. Coupling ethnohistorical information and groundwater models for the Coconino Plateau of the South Rim of the Grand Canyon, Spring-Fed Wetlands Conference, Las Vegas, NV, May 7-9, 2002, p. 23.

Anderson, D., S. Welch, D. Fleishman, W. Odem, **A. Springer**, L. DeWald, and J. Kennedy, 2002. Wetland Revitalization and channel stabilization at Clover Springs, Mogollon Rim, Arizona, Spring-Fed Wetlands Conference, Las Vegas, NV, May 7-9, 2002, p. 27.

Schlinger, C.M. and **A. Springer**, 2002. Navajo Aquifer Water Supplies for the Kayenta Community School, *in* Fractured-Rock Aquifers 2002, National Ground Water Association, Westerville, OH, pp. 32-35.

Springer, A., M. Amentt, L. DeWald, T. Kolb, and D. Fischer. 2001. How does upland forest management affect groundwater recharge? Same old question, new methods, 14th Annual Symposium of the Arizona Hydrological Society, September 12-15, 2001, Tucson, AZ.

Kessler, J.A. and **A.E. Springer**, 2001. Effectiveness of digital geologic framework models in large, data-poor, regional ground water models. 2001 annual meeting of the Geological Society of America, November 4-8, Boston, MA

Springer, A.E. 2001. Influences of land management changes on groundwater model parameters. 2001 annual meeting of the Geological Society of America, November 4-8, Boston, MA

Springer, A.E. 2001. Hydrogeologic processes in the uplands of the Verde Watershed, Verde Watershed Symposium State of the Watershed in 2001, Camp Verde, Arizona.

Amentt, M.A., **A.E. Springer**, T.E. Kolb, and L.D. DeWald, 2000. Restoration of a perched aquifer system through manipulation of transpiration at the watershed scale, 2000 annual meeting of the Geological Society of America, November 13-16, Reno, NV, v. 37, no. 7.

Springer, A.E. 2000. Restoring and conserving recharge for aquifers through forest management practices, 2000 annual meeting of the Geological Society of America, November 13-16, Reno, NV, v. 37, no. 7.

Navarro, L.F., **A.E. Springer**, S.P. Maslansky, 2000. Modeling sustainable yield in a semi-arid, shallow groundwater basin supporting riparian vegetation and perennial springs, 2000 annual meeting of the Geological Society of America, November 13-16, Reno, NV, v. 37, no. 7.

- Kessler, J.A. and **A.E. Springer**, 2000. Comparison of digital geologic framework models of the Redwall Muav Aquifer, Grand Canyon, Arizona, 2000 annual meeting of the Geological Society of America, November 13-16, Reno, NV, v. 37, no. 7.
- Springer, A.** and C. Schlinger. 2000. Verde Watershed Research and Education Program, 13th Annual Symposium of the Arizona Hydrological Society, September 20-22, 2000, Phoenix, AZ.
- Navarro, L.F., **A. Springer**, S. Maslansky, 2000. Development in rural Arizona: A modeling approach to characterize ground-water supplies, 13th Annual Symposium of the Arizona Hydrological Society, September 20-22, 2000, Phoenix, AZ.
- Springer, A.**, M. Amentt, L. DeWald, T. Kolb, and D. Fischer, 2000. Restoring riparian areas through landscape restoration: Influence of upland grazing, tree thinning, and fire on riparian ecosystems, Society for Ecological Restoration, International Symposium, Liverpool England, September 4-7, 2000.
- Springer, A.** and D. Kreamer, 2000. Hydrology of springs in the Southern Colorado Plateau, Arizona Sonoran Desert Museum, Spring Ecosystems of N. Am. Deserts Symposium, Tucson, AZ May 5-6, 2000.
- Springer, A.**, 2000. Who Manages Ground-Water Outside AMAs? The Grand Canyon Case Study, 20th anniversary Conference of Arizona Ground Water Management Act, Tempe, AZ, May 2, 2000.
- Amentt, M., **A. Springer**, D. Fischer, L. DeWald, E. Smith, S. Silbert. 2000. Watershed scale management at Hart Prairie, Arizona, 1st Arizona Water Protection Fund Information Transfer Meeting, March 22-23, 2000, Phoenix, Arizona.
- Masek Lopez, S., **A. Springer**, J. Kennedy, K. Bohnenstiehl, 2000. Verde Valley's changing riparian habitat, 1st Arizona Water Protection Fund Information Transfer Meeting, March 22-23, 2000, Phoenix, Arizona.
- Springer, A.**, T. Godwin, L. DeWald, J. Hink. 2000. Hoxworth Springs riparian restoration project, 1st Arizona Water Protection Fund Information Transfer Meeting, March 22-23, 2000, Phoenix, Arizona.
- T.N. Godwin, **A.E. Springer**, and L.E. DeWald, 1999. Restoration of a Degraded Perennial Spring fed Riparian System on the Colorado Plateau., EOS, Transactions American Geophysical Union, v. 80, no.
- Springer, A.E.**, 1999. Threats to the values of springs and riparian ecosystems of the Grand Canyon by ground-water mining, invited for theme session The Sustainability Challenge II: Water, 1999 annual meeting of the Geological Society of America, October 23-25, Denver, CO, v. 31 no. 7.

- Navarro, L.F., **A.E. Springer**, S.P. Maslansky, 1999. Characterizing the impacts of the conversion of a semi-arid ground-water basin from rural to urban development, 1999 annual meeting of the Geological Society of America, October 23-25, Denver, CO, v. 31 no. 7.
- Wilson, E.S., **A.E. Springer**, C.L. Winter, 1999. Delineating spring capture zones for the South Rim of the Grand Canyon, Arizona, using framework and numerical models, 1999 annual meeting of the Geological Society of America, October 23-25, Denver, CO, v. 31 no. 7.
- S. Kelly and **A.E. Springer**, 1999. Recharge mechanisms for a deep, fractured sandstone aquifer in an arid to semi-arid environment, 1999 annual meeting of the Geological Society of America, October 23-25, Denver, CO, v. 31 no. 7.
- Kelly, S., **A. Springer**, and M. Vanderbilt, 1999. Recharge mechanisms for the Coconino-Schnebly Hill aquifer in the Lake Mary area, Coconino County, Northern Arizona 12th Annual Symposium of the Arizona Hydrological Society, September 9-10, 1999, Pinetop, AZ.
- Springer, A.E.**, L.E. DeWald, S.C. Church, and T.N. Godwin, 1999. Separating riparian community and hydrological responses caused by climatic variability from those due to ecological restoration, International Conference of the Society for Ecological Restoration, San Francisco, CA.
- Sayers, R. C., L. E. DeWald, and **A. E. Springer**, 1999. Plant community changes following cattle and elk exclusion at Hoxworth Springs. 13th annual meeting of the Arizona Riparian Council, Flagstaff, Arizona, April 30, 1999, program with abstracts
- Springer, A.E.**, T.N. Godwin, and L.E. DeWald, 1999. Quantifying the difference between restoration method and climate in riparian restoration. 13th annual meeting of the Arizona Riparian Council, Flagstaff, Arizona, April 17, 1998, program with abstracts.
- Godwin, T.N., **A.E. Springer**, L.E. DeWald, 1998. Anthropogenic influences on spring dominated, high elevation riparian ecosystems in a semi-arid region. 1998 annual meeting of the Geological Society of America, October 26-29, Toronto, ON.
- Wilson, E. and **A.E. Springer**, and L. Winter, 1998, Hydrogeologic framework model for the South Rim of the Grand Canyon, Arizona, 1998 annual meeting of the Geological Society of America, October 26-29, Toronto, ON.
- Springer, A.E.**, 1998, Unsustainability of ground-water use in arid regions, 1998 annual meeting of the Geological Society of America, October 26-29, Toronto, ON, v.30, no. 7.
- Springer, A.**, 1998. Ground-water sustainability in Arizona, 11th Annual Symposium of the Arizona Hydrological Society, September 23-26, 1998, Tucson, AZ.
- Springer, A.**, L.DeWald, 1998. Evaluating success of restoring hydrological function to a high-elevation, seep-dominated riparian community, International Conference of the Society for

Ecological Restoration, September 28-30, Austin, TX, p. 118.

Springer, A.E., A.J. Gavin, T.N. Godwin, D.P. Higgins, R.W. Wilkinson, 1998. Characterization and ecological restoration of perched aquifers in the Flagstaff, Arizona, area. Program with abstracts, Rocky Mountain Section Meeting of the Geological Society of America, May 26-26, Flagstaff, Arizona, v. 30, no.6.

A. Springer, L. DeWald, T. Godwin, 1998. Hoxworth Springs: Restoration of a unique high-elevation riparian area. 12th annual meeting of the Arizona Riparian Council, Yuma, Arizona, April 17, 1998, program with abstracts

Higgins, D. and **A. Springer**. 1997. Estimating vertical water leakage from a perched mountain basin aquifer, EOS, Transactions American Geophysical Union, v. 78, no.

Springer, A.E., 1997. Conservation geology: a framework for understanding, restoring, and maintaining nature, Abstracts of the 1997 annual meeting of the Geological Society of America.

Gavin, A.J. and **A.E. Springer**. 1997. Conservation of a rare riparian community through hydrological restoration, Abstracts of the 1997 annual meeting of the Geological Society of America, v. 29, no. 7.

Gilbert, B.A. and **A.E. Springer**, 1997. Hydrogeologic parameters necessary to conserve backwater habitats of the Colorado River, Grand Canyon, Arizona, Abstracts of the 1997 annual meeting of the Geological Society of America, v. 29, no. 7.

Wilkinson, R.W. and **A.E. Springer**, 1997. Determining background metals concentrations at a former munitions depot, Camp Navajo, Arizona, Abstracts of the 1997 annual meeting of the Geological Society of America, v. 29, no. 7.

Parnell, R., **A. Springer**, L. Stevens, J. Bennett, T. Hoffnagle, T. Melis, and D. Stanitski-Martin, 1997. Flood-induced backwater rejuvenation along the Colorado River in Grand Canyon, Arizona, in Abstracts and Executive Summaries of the Glen Canyon Dam Beach/Habitat Building Flow Symposium, Grand Canyon Monitoring and Research Center, Flagstaff, Arizona.

Parnell, R. **A. Springer**, J. Bennett, and L. Stevens, 1997. Effects of the 1996 Glen Canyon Dam controlled flood on nutrient spiraling along the Colorado River corridor, Grand Canyon, Arizona, in Abstracts and Executive Summaries of the Glen Canyon Dam Beach/Habitat Building Flow Symposium, Grand Canyon Monitoring and Research Center, Flagstaff, Arizona.

Johnstone, H.C., L.E. Stevens, D. Martin, R. Parnell, **A. Springer**. 1997. Windows of opportunity: rejuvenation of fish nursery habitats in Grand Canyon, Arizona. Ecological Society of America, abstracts of annual meeting, 78:118.

Smith, E.B, M.S. Silbert, **A.E. Springer**, L.E. DeWald, A.J. Gavin, P. Curry, S. Church, A. Novak-Goodman, 1997. Integrated ecological restoration of a high elevation riparian forest in

Northern Arizona, Ecological Society of America, abstracts of annual meeting, 78:187.

Springer, A.E., W.D. Petrouson, J.C. Blakey, 1996. Hydraulic conductivity variability of a Colorado River reattachment bar induced by a controlled flood. EOS, Trans., Am. Geophysical Union, v. 77, no. 45, p.

A.J. Gavin, **A.E. Springer**, L. DeWald, S. Silbert, E. Smith, 1996. Restoration of the volcanic hydrogeology of a critical high-elevation riparian community in Arizona, Abstracts of the 1996 annual meeting of the Geological Society of America, v.28, no.7, p. A-347.

Springer, A.E., J.M. Wright, P.B. Shafroth, J.C. Stromberg, D.T. Patten, 1996, Coupling of ground-water flow and riparian vegetation models to simulate the impact of a reservoir release from New Waddell Dam into the Agua Fria River, Maricopa County, Arizona, 9th Annual Symposium of the Arizona Hydrological Society, program with abstracts.

Shafroth, P.B., J.C. Stromberg, D.T. Patten, **A.E. Springer**, J.M. Wright, 1996. Riparian habitat enhancement and groundwater recharge: a feasibility study on the Agua Fria River, Maricopa County, Arizona, 9th Annual Symposium of the Arizona Hydrological Society, program with abstracts.

Gavin, A.J., **A.E. Springer**, L.E. DeWald, E. Smith, S. Silbert, 1996, Restoration of a rare, high-elevation riparian community, 10th annual meeting of the Arizona Riparian Council, Prescott, Arizona, April 12, 1996, program with abstracts.

Petrouson, W.D. and **A.E. Springer**, 1995, Hydraulic-conductivity measurements of reattachment bars on the Colorado River, 1995 annual meeting of Geological Society of America, program with abstracts, v. 27, no. 7.

Dohm, S. and **A.E. Springer**, 1995, Hydrogeology and ground-water availability of the Bird Springs alluvial aquifer, Navajo Indian Reservation, 8th Annual Symposium of the Arizona Hydrological Society, Tucson, Arizona, program with abstracts.

Petrouson, W.D., R.D. Parnell, and **A.E. Springer**, 1995, Hydraulic-conductivity measurements of reattachment bars on the Colorado River, 1995 annual meeting of the Arizona-Nevada Academy of Science, program with abstracts.

Springer, A.E., E.S. Bair, 1994, Natural-gradient tracer test using pesticides, EOS, Transactions, American Geophysical Union, v. 75, no. 44, p. 252.

Finton, C.D., **A.E. Springer**, E.S. Bair, M.L. Jagucki, 1993, Estimating arrival of natural recharge at the water table using specific conductance, temperature and the detection of a conservative tracer, 1993 annual meeting of Geological Society of America, program with abstracts, v. 25, no. 7.

Springer, A.E., E.S. Bair, D. Beak, 1993, Agricultural chemical transport relative to a tracer

under natural recharge conditions in an alluvial valley aquifer, EOS, Transactions, American Geophysical Union, v. 74, no. 16, p. 129.

Springer, A.E., C.D. Finton, and E.S. Bair, 1992. Agricultural water-quality:pesticides and nitrate in ground water at the Ohio Buried Valley Aquifer Management Systems Evaluation Area, in 1992 annual meeting of Geological Society of America, program with abstracts, v. 24, no. 7.

Springer, A.E. and E.S. Bair, 1991. Distribution of agricultural chemicals relative to bromide at the Ohio Management Systems Evaluation Area, in 36th Annual Midwest Ground Water Conference, Indianapolis, Indiana.

Springer, A.E. and E.S. Bair, 1991. Comparison of methods used to delineate traveltime related capture zones of wells in a stratified-drift buried-valley aquifer, EOS, Transactions, American Geophysical Union, v. 72, no. 17, p. 111.

Springer, A.E., and E.S. Bair, 1989. The importance of non-contiguous recharge areas to wellhead protection strategies in stratified-drift buried-valley aquifers: 34th Annual Midwest Ground Water Conference, Kalamazoo, MI.

OTHER PRESENTATIONS BY STUDENTS

Curry, P., 1997. Hydrological restoration of a high-elevation watershed and associated riparian community, Hart Prairie, Arizona, Arizona Universities Environmental Conference, Flagstaff, Arizona.

Wilkinson, R.W., 1997. Springflow hydrograph analysis: a tool for water-supply management and aquifer characterization, AWWA Water Resources Conference, Seattle, WA,

PROJECT REPORTS (unpublished)

Springer, A.E., J. Welch, J. Peeler, C. Schlinger. 2001. Final Project Report for Wastewater Disposition Project for the Big Park Wastewater Treatment District , 50 p.

Masek Lopez, S. and **A. E. Springer**. 2001. Final Project Report for Upper Verde Valley riparian area historical analysis , Arizona Water Protection Fund, Arizona Water Protection Fund Grant No: 98-0057WPF, 26 p, with 42 p. Task 6 report.

Springer, A.E., T. Godwin, L. DeWald, J. Hink, 1999. Final Project Report for Hoxworth Springs Riparian Restoration , Arizona Water Protection Fund Grant No: 96-003WPF, 62 p.

Springer, A.E., T. Godwin, L. DeWald, S. Church, M. Silbert, E. Smith, 1999. Final Project Report Critical riparian habitat restoration along a perennial reach of a Verde River tributary , Arizona Water Protection Fund Grant No: 95-006WPF, 97 p.

Springer, A.E. and M. Gavette. 1997. Final project report, Analysis and Interpretation of well cuttings from Black Mesa, Arizona. submitted to U.S. Geological Survey, award # 1434-WR-97-5A-00477.

Springer, A.E. and M. Gavette. 1997. Final project report, Analysis and Interpretation of well cuttings from the Flagstaff, Arizona, area. submitted to U.S. Geological Survey, award # 1434-WR-97-5A-00455.

Parnell, R., **A. Springer**, L. Stevens, 1998. Flood-induced backwater rejuvenation along the Colorado River in Grand Canyon, Arizona (continuation): 1997 final report.

Parnell, R., **A. Springer**, L. Stevens, 1997. Flood-induced backwater rejuvenation along the Colorado River in Grand Canyon, Arizona: 1996 final report.

Quarterly progress reports and annual technical reports submitted for Arizona Water Protection Fund grant numbers 95-005WPF (4 per year since 3/96) and 96-006WPF (4 per year since 4/97). There are over 200 total pages in these progress reports..

Shafroth, P.B., J.C. Stromberg, D.T. Patten, **A.E. Springer**, J.M Wright, Dec. 1996. Ground-water recharge and riparian habitat enhancement from water discharge from New Waddell Dam into the Agua Fria River: Phase 1--Planning and Feasibility, submitted to Arizona Dept. of Water Resources- Phoenix AMA, Grant #AUG94PH-4-00.

GRANTS AWARDED (2002 \$65,769; 2001 \$178,000; 2000 \$20,291; 1999 \$557,923; 1998 \$6,100; 1997 \$173,665; 1996 \$240,690; 1995 \$52,585; Total ~\$1,240,000)

NAU GeoWall, co-P.I. Tom Hoisch, ELearning Initiative, Proposition 301, \$23,500, 2/02-6/02.

Middle Verde Springs Monitoring Study, USDA-FS (Coconino, Tonto, Prescott), \$9,997, 6/02-12/15/05.

Delineation of capture zones of the Kaibab Paiute Reservation (Year 2), U.S. EPA (through Kaibab Paiute), \$20,407, 5/30/02-12/31/02

Regional aquifers characterization through spring discharge analysis, USGS Section 104B through U of A Water Resources Research Center, \$11,865, 3/02-2/03.

Middle Verde Springs monitoring study, Salt River Project, \$20,000, 7/01-9/02

Delineation of capture zones of the Kaibab Paiute Reservation, U.S. EPA (through Kaibab Paiute), \$14,175, 5/01/01 to 5/31/02

Ecological Restoration Institute, PI-Diana Elder Anderson, co-PIs, K. Anderson and Abe Springer, \$65,682, 09/01/10 to 08/31/03

Restoration of wet meadows: Influence of burning herbaceous communities on groundwater recharge, Bureau of Land Management, co-P.I. Tom Kolb, \$57,216, 6/01 to 6/03.

Big Park Wastewater Recharge Project, Big Park Wastewater District, co P.I. C. Schlinger, \$20,947, 1/01-12/01.

Coconino Plateau Hydrology Workshop, Arizona Department of Water Resources and U.S. Bureau of Reclamation, \$4,500, 10/00-8/31.

Rates and amounts of discharge from seeps and springs of the Redwall-Muav aquifer, Grand Canyon, Arizona, Grand Canyon Association, \$4,416, 6/00-5/01.

Ponderosa pine water balance at Hart Prairie: Role of herbaceous transpiration, co-P.I. Tom Kolb, Water Resources Research Center, \$10,375, 6/00-12/01.

Massie Pilot Project, Environmental Research and Education Center, Department of Energy, \$50,000, (Rich Foust is P.I., but I m using 80 % of funds), 10/99 to 5/02

Review of WQARF Remedial Actions, Arizona Department of Environmental Quality, \$4,000, 5/99 to 6/00.

Upper Verde Valley riparian area historical analysis, Arizona Water Protection Fund, \$44,019, 5/99 to 2/01.

Watershed restoration of a high-elevation riparian community, Arizona Water Protection Fund, co-P.I. with L. DeWald, W. Odem, \$286,275, 8/99 to 8/02.

Verde River headwaters riparian restoration demonstration project, Arizona Water Protection Fund, co-P.I. with D. Anderson, W. Odem, L. DeWald, \$193,629, 9/99 to 9/02.

Fracture and conduit flow characterization of a deep regional carbonate aquifer, HBCU/MIA consortium, Department of Energy, \$6,100, 10/98 to 9/99.

Bioremediation of hydrocarbon spills in the Coconino National Forest, U.S. Forest Service, co-P.I. with G. Southam, \$40,000, 1997.

Investigation of attenuation and natural remediation of acid mine drainage, Iron King Mine, Verde Valley, Arizona, Phelps Dodge, co-P.I. with R. Parnell, \$24,843, 5/97 to 4/98.

Analysis and interpretation of well cuttings from the Flagstaff, Arizona, area. U.S. Geological Survey, lead P.I., co-P.I. with R. Parnell, \$4,300, 4/97 to 9/97.

Analysis and interpretation of well cuttings from Black Mesa, Arizona, U.S. Geological Survey, lead P.I., co-P.I. with R. Parnell, \$7,865, 4/97 to 9/97.

Unanticipated Glen Canyon Dam high flows: Impacts on nutrient cycling and backwaters, co-P.I. with R. Parnell, \$16,440, 2/13/97 to 12/31/97.

Influence of regional ground-water on the Grand Canyon, NAU Organized Research, \$14,920, 7/97 to 6/98.

Hoxworth Springs Riparian Restoration, Arizona Water Protection Fund, lead P.I., co-P.I. with L. E. DeWald, \$31,545, 2/1/97 to 1/31/99.

Response of Bebb Willow to Riparian Restoration, Arizona Water Protection Fund, co-P.I. with L.E. DeWald, \$33,752, 2/1/97 to 1/31/99.

A proposal to continue monitoring backwater rejuvenation along the Colorado River, Grand Canyon, Arizona, Bureau of Reclamation, co-P.I. with L.E. Stevens and R. Parnell, \$75,999, 10/96 to 9/97.

Analysis and interpretation of well cutting from three separate wells around Flagstaff, Arizona, U.S. Geological Survey, P.I., \$4,500, 6/96 to 8/96.

Evaluation of backwater rejuvenation along the Colorado River in the Grand Canyon, Arizona, U.S. Bureau of Reclamation, co-P.I. with R.A. Parnell, and L. Stevens, \$33,000, 10/95 to 9/96.

Evaluation and exploration of ground-water resources using remote sensing, geologic mapping and geophysical techniques, U.S. Geological Survey, \$39,876, 1/96 to 10/96.

Critical riparian habitat restoration along a perennial reach of a Verde River Tributary, Arizona Water Protection Fund, lead P.I., co-P.I. with L. DeWald (Forestry), \$102,535, 3/96 to 3/99.

Development of a water budget for water discharged from New Waddell Dam into the Agua Fria River, Arizona Department of Water Resources, \$5,000, 10/95 to 10/96.

Transient ground-water flow and storage in perched volcanic aquifers, Organized Research, NAU, P.I., \$17,780, 7/96 to 6/97.

Hydrogeologic computer curriculum, Instructional & Curricular Development Grant, Northern Arizona University, P.I., \$2,435, 7/95 to 6/96.

"Safe Yield" of an aquifer supplying baseflow to a stream in Arizona, Organized Research, Northern Arizona University, P.I., \$12,150, 7/95 to 6/96.

GRANTS PENDING

GRANTS IN PROGRESS

Timing of karst development and spring origins in the Grand Canyon of the Colorado River, co-

P.I. with TBA, NSF, to be submitted.

Influences of land-use management practices on recharge to a deep regional aquifer, co-P.I., NSF, to be submitted.

GRANTS NOT FUNDED (only 2001)

Grand Canyon science and management immersion: a multidisciplinary water resources project, NSF-IGERT, co-PI with Dave Kremer and Peter Starkweather (UNLV), Dan McCool (U. Utah), and Chris Duffy (Penn State), \$2,500,000, 7/02 to 6/07 (resubmitted)

Dynamics of Coupled Natural and Human Systems, NSF-Biocomplexity, PI-Diana Elder Anderson, Co-PIs, Kirk Anderson, Theodore Neff, Sr. Personnel- A. Springer, \$739,928, 09/01/01 to 8/31/05

Between 1994 and 2000, non-funded proposals included 19 other proposals submitted either as a principal or co-principal investigator to the U.S. Environmental Protection Agency, U.S. Department of Agriculture, and National Science Foundation.

GRADUATE THESIS INVOLVEMENT

Masters Students in Geology (advisor): 11 completed, 6.5 in progress

Amentt, Melissa A. 2002. Hydrogeology and evapotranspiration of the herbaceous understory at a high-elevation riparian community, Hart Prairie, Arizona.

Navarro, Luis, 2002. Characterization and ground-water flow modeling of the Mint Wash/Williamson Valley area, Yavapai County, 140 p.

Wilkinson, Randall, 2000. Water resources of Bellemont Park, Coconino County, Arizona, p. 262.

Kelly, Sarah, 2000. Ground-water flow simulation and recharge sources for a fractured sandstone aquifer, Coconino, County, Arizona, 145 p.

Wilson, Eric, 2000. Geologic framework and numerical flow models of the Coconino Plateau Aquifer, Grand Canyon, Arizona, 72 p.

Semmens, Betsy A., 1999. Hydrogeologic characterization and numerical transport simulations of a reattachment-bar aquifer in the Colorado River, 184 p.

Higgins, Daniel P., 1998. Leakage simulations from a perched mountain aquifer in the Inner Basin, San Francisco Mountain, Arizona, 141 p.

Gavin, Andrew J., 1998. Hydrogeology and numerical simulation of a spring-dominated, high-elevation riparian community, Hart Prairie, Arizona, 177 p.

Wright, Julie M., 1997. Coupling ground-water and riparian vegetation models to simulate impacts of a reservoir release from Lake Pleasant, Maricopa County, Arizona, 116 p.

Petroutson, William D., 1997. Interpretive simulations of advective flowpaths across a reattachment bar during different Colorado River flow regimes, 159 p.

Dohm, Stephan, 1995. Hydrogeology and ground-water availability of the Bird Springs alluvial aquifer on the Navajo Indian Reservation.

In Progress: Tim Godwin, James Kessler, Tom Sabol, Stephen Flora, Gina Mullen, Lanya Ross, Ron Griffiths (co-advised)

Masters Students in Geology (committee): 7 completed, 1 in progress

Completed: Corey Allen (95), Dana Strength (97), Katie Cumming (97), Jeff Bennett (97), John Malusa (98), Sarah Rogers (99), Andrew Schroth (01)

In Progress: Amy Welty

Masters Students in Earth Science (committee): 1 completed
Completed: Elsbeth Antencio (96)

Masters Students in Forestry (committee): 3 completed, 0 in progress
Completed: Brad Baum (99), Stephanie Church (00), Dylan Fisher (01)
In Progress:

Doctoral Students in Forestry (committee): 1 completed, 0 in progress
Completed: Jonathan Horton (Comprehensive exam 99, Defense 00)
In Progress:

Masters Students in Biology (committee): 1 completed
Completed: Debbie Wong (98)

SENIOR THESIS/RESEARCH ADVISING: 9 theses and 3 research projects completed

Joe Welch, 2001. Big Park wastewater disposition project, (supervised senior research).

Tower, Lisa, 2000. Baseflow of Oak Creek, West Clear Creek, and Wet Beaver Creek, (supervised ENV485/490 research).

Kennedy, Jeff, 2000. Channel incision and straightening on the Southern Colorado Plateau at Clover Spring, Arizona. 39 p. (co-advised with Diana Anderson, CESE)

Vanderbilt, Mark, 1998. Analysis of Southern Oscillation Influence on water levels in the Lake Mary and Woody Mountain aquifers (senior research project), 200 p.

Puhn, Ken, 1998. An analysis of sublimation in the Hart Prairie area of Arizona, 38 p.

Gavette, Matthew, 1997. Analysis and interpretation of well cuttings from the Flagstaff and Black Mesa areas, Arizona, 239 p.

Reymers, Vanessa J., 1997. Analysis and interpretation of a numerical model of the perched aquifer system at Hoxworth Springs, Coconino County, Arizona, 32 p.

Curry, Patrick J., 1997. Hydrological restoration of a high elevation watershed and associated riparian community Hart Prairie, Arizona, 48 p.

Kay, John T., 1997. Saturated and unsaturated flow of water through hydrocarbon contaminated soils, 78 p.

O'Brien, G. 1997. The effects of test beach/habitat building flows on hydraulic conductivity in the reattachment bar and return current channel at 55.5R mile on the Colorado River in Grand Canyon, 69 p.

Lee, Robert C.L., 1996. Characterization and spatial variability of hydraulic conductivity and soil texture in a seep dominated riparian community, Hart Prairie, Arizona.

Shetter, Timothy C., 1996. Analysis and interpretation of well cuttings from two deep water wells in Northern Arizona.

In Progress: n/a (Sabbatical 2000-2001)

OTHER ADVISING

Mentor for NASA SHARP Plus summer program. Mentored gifted high school student (Nicholas Negrete) for 8 weeks in the summer of 1997.

Faculty advisor for approximately 15 undergraduates per year.

NOTEWORTHY ACCOMPLISHMENTS OF GRADUATE STUDENTS (\$21,500)

Jeff Kennedy, 2000 - Hooper Undergraduate Research Award,
 Sarah Kelly, 1998 - ARCS Scholarship, \$6,000
 Betsy Gilbert, 1997 - Arizona Hydrological Society Scholarship, \$500
 Betsy Gilbert, 1997 - ARCS Scholarship, \$6,000
 Julie Wright, 1997 - Errol L. Montgomery Prize in Geology, \$1,000
 Julie Wright, 1996 - ARCS Scholarship, \$6,000
 Bill Petrouson, 1995 - Arizona Hydrological Society Scholarship, \$500
 Stephan Dohm, 1995 - National Ground Water Association Student Fellowship, \$1,000
 Stephan Dohm, 1994 - Arizona Hydrological Society Scholarship, \$500

VISITING LECTURES

2001 The College of Wooster, Dept. of Geology
 2001 The Ohio State University, Dept. of Geological Sciences
 2001 Illinois State Water Survey, Champaign-Urbana, Illinois
 2001 University of Wisconsin-Madison, Dept. of Geology and Geophysics
 2001 University of Minnesota, Dept. of Geology and Geophysics
 2000 University of Arizona, Dept. of Hydrology and Water Resources
 2000 University of New Mexico, Dept. of Geology
 1999 California State University, Sacramento, Dept. of Geology
 1998 University of Texas, Dept. of Geological Sciences

INVITED LECTURES

2001 Arizona Hydrological Society - Annual Symposium - Luncheon speaker
 1997 Arizona State University, Dept. of Plant Biology,
 1997 Arizona Hydrological Society - Phoenix Chapter
 1995 Arizona Hydrological Society - Phoenix Chapter

SERVICE- Academic**Department**

2001-2002 Flagstaff Earth Science Seminar Series coordinator
 2001-2002 GIS and GeoWall committees
 1999-2000 External relations committee (newsletters, development, river trip)
 1997-1998 Chair, Screening committee for Assistant Professor position in Geology and
 Environmental Sciences specializing in geomorphology, 68 applications, 2 hired
 1998-1999 Undergraduate curriculum/Liberal Studies committee
 1995-1998 Graduate Committee, reviewed 40 to 60 graduate applications per year
 1999-2000 Graduate Committee
 1995-1997 Computer Committee, helped write successful grant proposal for new computer
 lab (1995/96)

- 1995-2001 Invited and hosted 1996-2001 Birdsall Dreiss Distinguished Lecturers of the Hydrogeology Division of the Geological Society of America
- 1997 Presentation in Flagstaff Earth Science Seminar Series entitled *The geology of conservation: the physical science components of conservation science.*
- 1996 Organized a workshop in the Geology Department on remote sensing methods for finding water resources in the Flagstaff area.
- 1994-1995 Undergraduate Committee

College

- 2001-2002 College curriculum committee
- 1999-2000 College representative on Campus-Wide ad-hoc GIS subcommittee
- 1998 Served on a grade appeal committee
- 1996-1999 Marshall for three commencements and Reader for one commencement

University

- 2000-2001 Co-coordinator of Verde Watershed Research and Education Program in Center for Sustainable Environments at NAU
- 2000 Gave 2-hour presentation to 15 high school, Native Americans for Earth Circles Environmental Conference
- 1999-2000 Member planning committee for Salt River Project Centennial gift
- 1999-2000 Planned, developed, reviewed, and assessed new Colloquium curriculum for new Liberal Studies Program and taught new UC101 course.
- 1999-2000 Member Center for Environmental Sustainability Outreach/Development Committee
- 1998-2000 Liberal Studies Council member, reviewed 100s of syllabi, participated in many discussions related to the new Liberal Studies curriculum (met 2 to 4 hrs/week)
- 1998 Resource expert, Ponderosa Group workshop, one of 4 experts to present research information and to facilitate discussions among 20 NAU faculty on incorporating principles of sustainability into the curriculum.
- 1996-2000 Member, Planning Committee for Ponderosa Group, a University-wide group committed to incorporating principles of sustainability into curriculum.
- 1996-1997 Member, Planning Committee for five-day workshop for university educators entitled "Southwest Institute for Sustainability in Higher Education"

SERVICE- Professional

National/international professional societies

- 2001-2002 GSA Hydrogeology Division Distinguished Service Award Committee (Chair in 2002)
- 2000 Created and organized theme session for annual GSA meeting in Reno entitled Restoring and Sustaining Aquifers for their In-Situ Values
- 1998 Created and organized theme session for annual Geological Society of America

- meeting in Toronto entitled Ground-Water Sustainability .
- 1997 Co-organized and co-lead 2-day workshop for Historically Black Colleges and Universities/Minorities Consortium related to 3 Environmental Science courses developed at NAU and Clark Atlanta University.
- 1997 Created and organized theme session for annual Geological Society of America meeting in Salt Lake City entitled "Conservation Geology: Restoring and Maintaining Earth's Ecosystems".

Local/state/regional professional societies

- 2001-2002 Member planning committee for 2002 AHS Symposium
- 2001 Co-coordinator of Verde Watershed Symposium and Field Trip to Verde Headwaters
- 2000-2001 Member planning committee and editor of proceedings volume for Coconino Plateau Hydrology Workshop, 1 ½ day technical workshop held at NAU to discuss Grand Canyon Hydrology, edited proceedings volume
- 2000-2001 Arizona Water Resources Research Center Advisory Council, met twice a year, reviewed about 10 grant proposals per year
- 1999 Member planning committee for 1999 Arizona Hydrological Society Symposium (participated in biweekly 1-2 hour conference calls for 3 months)
- 1999 Led field trip for Commissioners of the Arizona Water Protection Fund to Hart Prairie
- 1999 Organized and managed first AHS-Flagstaff Chapter Internship, awarded \$2,000 to one student and coordinated 240 hours of work.
- 1999 Organizer and co-leader for field trip of the Arizona Riparian Council annual meeting to Hoxworth Springs and Hart Prairie.
- 1997-1998 Organized and led field trip and chaired theme session for 1998 Rocky Mountain Section meeting of GSA in Flagstaff.
- 1995-1999 President, Flagstaff Chapter of the Arizona Hydrological Society, coordinated monthly activities for over 30 members of local chapter.
- 1997-1999 Vice-President, State Corporate Board, Arizona Hydrological Society.
- 1995-1999 Member, Corporate Board of Arizona Hydrological Society, 9 member state-wide board to manage the society, met quarterly.
- 1997 Co-Leader for 35 person Arizona Hydrogeological Society Hydrology/Geology Bus tour of Verde Valley, Flagstaff area, and Payson area.
- 1997 Participated in workshop with 30+ experts in Arizona to develop riparian area rapid assessment program
- 1997 Co-coordinated field trip to Camp Navajo, Bellemont, Arizona, for Flagstaff Chapter of the Arizona Hydrological Society
- 1997 Participated in scientific review panel to address comments submitted to USFS about the Tusayan Growth Draft Environmental Impact Statement
- 1995-1996 Co-Chair, 9th Annual Symposium of the Arizona Hydrological Society, over 70 presentations over two days with 250 in attendance and a \$45,000 budget, organized a one day field trip
- 1996 Participated an all-day workshop with 30 other experts in Tucson for establishing

riparian research priorities.

1996 Participated in workshops for the development of monitoring and research programming for the Grand Canyon Monitoring and Research Center.

Journal/book reviewer

2002 Reviewed chapter for *Ecological Restoration of Southwestern Ponderosa Pine Forests* book
 2001 Reviewed manuscript for *J. of Hydrology*
 1998 Diary reviewer for book *Environmental Geology: An Earth Systems Science Approach*
 1998 Reviewed manuscript for USDA National Soil Tilth Lab for submission to JEQ
 1998 Reviewed the book *Perspectives on Sustainable Development of Water Resources in Kansas* for the journal *Geotimes*.
 1998 Reviewed manuscripts WR98-203 and WR98-204 for the journal *Water Resources Research*
 1998 Reviewed a book proposal for W.H. Freeman and Co. Publishers
 1998 Reviewed the book *Applied Ground-Water Hydrology and Well Hydraulics* for the journal *Ground Water*
 1998 Reviewed manuscript Q98-39 for the *Journal of Environmental Quality*
 1996 Reviewed journal article for *Contaminant Hydrology*

Grant proposal reviewer

2001 Reviewed one NSF proposal
 2000 Reviewed one NSF proposal
 2000 Reviewed one Coop. Inst. for Coastal and Estuarine Environ. Tech. proposal
 1999 Reviewed two NSF proposals
 1998 Reviewed one NSF proposal
 1997 Reviewed two NSF proposals
 1997 Reviewed two American Chemical Society proposals.

SERVICE - Community

2002 Coconino County Science Advisory Group - for new county plan
 2002 Interviewed for article about regional aquifer in the *Arizona Daily Sun*
 2002 Member Black Mesa Trust Advisory Board
 2000-2001 Planning committee for Earth Notes, KNAU environmental piece
 2000-2001 Numerous newspaper and radio interviews for new Verde Watershed Research and Education Program
 2000 Participated in panel discuss on Water Issues for Flagstaff Festival of Science
 1999 Interviewed for article on Dry Lake in the *Arizona Daily Sun*
 1999 Presented talk on basic vs. applied science issues in water at the Science Issue Education Day of the Flagstaff Leadership Program to 25 leaders in Flagstaff
 1998 Presented twilight talk at the Museum of Northern Arizona for Flagstaff Festival

- of Science entitled El Niño and Groundwater .
- 1998 Natural History Institute planning committee for Museum of Northern Arizona, one half day meeting and monthly follow-ups.
- 1997 Provided information for KNAU series on water issues in Northern Arizona
- 1997 Presented talk entitled "How much water for Flagstaff?" at Flagstaff Science Issues day of the Flagstaff leadership program to 40 leaders in Flagstaff
- 1997 Wrote letter to editor of Arizona Daily Sun concerning Canyon Forest Village Growth Draft Environmental Impact Statement
- 1997 Wrote 6 page comment letter to Kaibab National Forest concerning Canyon Forest Village Growth Draft Environmental Impact Statement
- 1997 Co-led field trip at Hart Prairie Preserve as part of Flagstaff Festival of Science
- 1997 Co-coordinated with the Grand Canyon Trust a public forum on ground-water issues related to the Tusayan Growth Environmental Impact
- 1995-1997 Coordinated volunteer work days at The Nature Conservancy preserve for hydrological restoration
- 1996 Presented talk entitled "Springs, Seeps, and Shallow Ground Water" for over 100 persons at Flagstaff Festival of Science.
- 1996 Participated in NAU on the Move video related to research at Hart Prairie
- 1996 Appeared on evening news segments on channels 3 and 5 in Phoenix related to research at Hart Prairie

OTHER ACTIVITIES

Aquifer tests of Second Mesa Day School wells, analyzed and reviewed and made recommendations based on constant rate pumping, and step tests of wells, 2002.

Aquifer tests of Kayenta Boarding School wells, analyzed and reviewed and made recommendations based on pumping and step tests of well, 2000-2001.

Bioremediation feasibility study at former flammable storage areas, Coconino National Forest, Mormon Lake Ranger District, 1996-1997.

Expert for the City of Flagstaff for a case, *Crawley vs. the City of Flagstaff*, reviewed hydrological reports and studies, 1995-1997

Hydrogeology of Colorado River beach deposits, U.S. Dept. of Interior, Bureau of Reclamation, Glen Canyon Environmental Studies, conducted and analyzed pneumatic slug tests for over 60 wells in Colorado River beaches, measured and analyzed water levels, 1995-1997.

On-site hydrogeologist, Ohio Management Systems Evaluation Area, Piketon, Ohio, oversaw drilling and logging of over 90 monitoring wells, conducted tracer tests, supervised collection of over 7,000 ground-water samples, constructed flow and transport models, 1991-1994.

Ground-water resource evaluation for a 105 lot subdivision, Price Development Corp., Fairfield County, Ohio, conducted and analyzed aquifer tests, logged wells, constructed geologic maps and cross sections, 1993.

Field investigations for a trial, *Brady Lake Citizens Assoc. vs. the City of Kent, Ohio*, conducted lakebed permeability measurements and analysis, 1991.

Ground-water flow assessment, Frito Lay, Wooster, Ohio, summarized geology and ground-water flow in Killbuck Creek alluvial valley aquifer, 1990.

Ground-water modeling project, City of Wooster, Ohio, concerning delineation of Wellhead Protection Areas of municipal wellfields in an alluvial valley aquifer, 1989-1990.

Approved by Council
9/15/89

STATEMENT OF POLICY

The Office of Surface Mining Reclamation and Enforcement of the U.S. Department of the Interior (OSM) has issued a draft environmental impact statement (DEIS) evaluating a permit application from Peabody Coal Company (Peabody) to mine Black Mesa Coal. The DEIS states that OSM is considering only two alternatives to issue a permit to Peabody for mining operations as is or to deny the permit. The Hopi Indian Tribe believes a broader range of alternatives should be considered by OSM and that the DEIS and related Cumulative Hydrologic Impact Assessment (CHIA) are inadequate in several important respects. The Hopi Indian Tribe demands that OSM issue only a conditional permit that would include at least the following:

- (a) Require Peabody to provide further information on and implement alternative technologies or procedures to transport coal other than the present mix of coal and water through the slurry line;
- (b) Revise the Post-mine land use plan to reclassify all impoundment structures as temporary, requiring removal as mining activities ceases;
- (c) Remove the finding of no material hydrologic damage from the DEIS and CHIA and instead conclude on the basis of existing data that no reliable scientific conclusion can be drawn and gather further data upon which to base a reliable scientific conclusion;
- (d) Require Peabody to agree with the Hopi Tribe to a schedule of release of water from surface water impoundments that results in no disruption to normal, pre-mine streamflow conditions;
- (e) Require Peabody to adopt an archaeological resources program (including establishment of a Black Mesa Cultural Resources Center on the Hopi Reservation) that is acceptable to the Hopi Indian Tribe;
- (f) Require Peabody to adopt a program that is acceptable to the Hopi Indian Tribe for the repatriation of all human remains removed during mining operations;
- (g) Provide financial support for Hopi DMRE program until new Section 710 Legislation is passed; and
- (h) Evaluate the procedure of mixing of Black Mesa coal and Kayenta coal and the calculation for payment of coal royalty.



December 14, 1993

BY GENERAL COUNSEL

DEC 17 1993

AS 7,8,9,10,11,12,13,14,15

Vernon Masayesva
CHAIRMAN

Patrick C. Dallas
VICE CHAIRMAN

BY FEDERAL EXPRESS

Mr. John A. Gill
Mr. Robert J. Dummer
U.S. Army Corps of Engineers
Los Angeles District
Arizona Regulatory Field Office
3636 North Central Avenue, Suite 760
Phoenix, Arizona 85012-1936

Re: Black Mesa-Kayenta Mines

Gentlemen:

In response to your November 18 notice and solicitation for comments, the Hopi Tribe submits these comments regarding Peabody Coal Company's ("PCC's") request for authorization to discharge dredged and fill material into waters of the United States at the Black Mesa and Kayenta Mines under section 404 of the Clean Water Act, 33 U.S.C. § 1344 (1986).

I. SUMMARY

PCC has requested that the U.S. Army Corps of Engineers ("the Corps") authorize, under Nationwide Permit No. 21, 33 C.F.R. Part 330 Appendix A (B) (21), the discharge of dredged and fill material into the waters of the United States at the Black Mesa and Kayenta Mines in Arizona. According to the regulations governing nationwide permits, these permits "are designed to regulate with little, if any, delay or paperwork certain activities having minimal impacts." 33 C.F.R. § 330.1(b). For those activities with more than minimal impact, these same regulations require that an individual permit be required of the applicant. § 330, Nationwide Permit Conditions, § 13(d).

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An individual permit is required for the impoundments for at least three reasons. First, The Corps has improperly limited the scope of its review to impoundments constructed after October 5, 1984. The Corps has the legal authority to review all of the impoundments at the Black Mesa-Kayenta Mine, as the discussion below indicates, and failing to do so results in an incomplete accounting of the adverse impacts associated with these structures. Without the proper accounting of all impacts, a conclusion that the impacts are minimal is premature and unwarranted.

Second, even if one somehow ignores the pre-1984 impoundments, the available information on the post-1984 impoundments is insufficient for the Corps to find that these impoundments have only minimal impact. For example, information is lacking regarding the impacts of these impoundments on wetlands, riparian vegetation, wildlife habitat, and downstream flows. Given the lack of necessary information on these impoundments, the Corps is not in a position to authorize them under Nationwide Permit No. 21.

Finally, the limited information available on the impoundments plainly indicates that their impacts are more than minimal and that an individual permit is required. There are, for example, well over 100 impoundments which control the runoff from roughly a 62,000 acre area, range in size up to 755 acre-feet; have a cumulative capacity of almost 5,500 acre-feet; result in evaporative loss of several hundred acre-feet or more per year; and are virtually never dewatered. The construction, maintenance and operation of these impoundments can hardly be characterized as having minimal impacts on the surrounding arid environment and fragile hydrologic system.

For these reasons, an individual permit which includes mitigation measures directed at protecting downstream flows is warranted and should be required by the Corps. This would require PCC to obtain one individual permit for the mines, not one for each impoundment.

The Tribe would like to emphasize, as it has in the past, that it does not oppose the mining and

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processing of coal at the mines, provided that the environmental and hydrologic impacts are properly analyzed and the environment is protected. Under the present circumstances, however, where pre-1984 impoundments have been excluded from consideration, information on impacts is lacking, and the information that is available shows more than minimal impacts, the individual permit process should be initiated.

II. DISCUSSION

A. Pre-1984 Impoundments

As the Corps' November 18 solicitation for comments reflects, the Corps has taken the position that its jurisdiction to consider environmental impacts produced by the fill activities extends only to those activities occurring after October 5, 1984. In fact, the Corps retains jurisdiction over pre-1984 impoundments at the Black Mesa and Kayenta Mines under the "discretionary authority" given to the Corps under 33 C.F.R. §§ 330.1(d) and 330.4(e). Pursuant to this discretionary authority, the Corps may "suspend, modify, or revoke" authorizations under a nationwide permit upon a finding that the individual or cumulative adverse impacts are "more than minimal." § 330.1(d). *

According to our information, there are 168 pre-1984 impoundments, with a combined total capacity of almost 4,900 acre-feet. Some of the largest impoundments among them, N7-D, N14-D and J16-L, have individual capacities of 755, 559, and 484 acre-feet respectively. These structures are virtually never dewatered. As a result, the impoundments retain water which would otherwise make its way downstream, either directly or indirectly, to recharge the alluvium and provide downstream benefits. Some of the larger of these impoundments are located only 4 miles from downstream Hopi lands. X

The storage of water in impoundments could result in the loss of downstream reaches that support habitat for birds, and other native plant and animal life, and adversely affect the delicate balances that exist with respect to these species. This retention of water could

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also result in the loss of discharges into the wash which create wet zones used for stock or domestic animals. Moreover, the evaporative loss associated with these structures may exacerbate the loss of indirect benefits downstream.

These figures alone require the Corps to exercise its discretionary authority and insist that PCC obtain an individual permit for these impoundments. Furthermore, there is a corresponding lack of information on these structures, such as their impacts on wetlands, riparian vegetation, and wildlife habitat, which further mandates an exercise of discretionary authority on the Corps' part. A chart detailing the capacity of these pre-1984 impoundments is enclosed.

B. Post-1984 Impoundments

1. An Individual Permit Is Necessary

As a preliminary matter, it should be noted that the information necessary to properly analyze the adverse environmental and hydrologic impacts associated with the post-1984 structures is lacking, just as with the pre-1984 impoundments. For example, the impact of the post-1984 impoundments on wetlands is apparently unknown, as no wetlands delineation has been completed in accordance with the requirements of 33 C.F.R. § 330.1(e)(3). Nor is there any information in the Corps' solicitation for comments on riparian vegetation or wildlife habitat. To the extent that there is information available, however, it indicates that the impoundments at issue have significant impacts on the environment. These significant impacts are discussed in more detail below.

a. Impacts Associated with Impoundments

The significant environmental impacts associated with PCC's post-1984 impoundments make them subject to an individual permit. Section 13(d) of the nationwide permit conditions, found at 33 C.F.R. § 330, requires that the district engineer, upon a finding of "more than minimal" adverse impacts, to direct the applicant to seek an individual permit. In addition, in adopting the current version of Nationwide Permit No. 21, the Corps specifically stated that an individual permit would be

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required upon a finding of "more than minimal" impacts. 56 Fed. Reg. 14605 (April 10, 1991).

The 54 impoundments at issue have a total storage capacity in excess of 610.27 acre feet of water, which represents a significant amount of water in this arid region where much of the land receives less than six inches of precipitation per year. The largest of these impoundments, N14-H, alone has a storage capacity of over 227 acre-feet.

In addition, we understand that the impoundments are virtually never dewatered, and that they result in substantial evaporative loss. For example, the June 1990 FEIS on the Black Mesa and Kayenta Mines estimates the evaporative loss from all impoundments at the mines at up to 250 acre feet of water per year. It further notes that if all of the impoundments are full the evaporative loss could reach 1,000 acre-feet per year. FEIS at IV-14 (enclosed).

Like the pre-1984 impoundments, these structures retain water which would otherwise make its way downstream, either directly or indirectly, to recharge the alluvium and provide downstream benefits. Storage of water in these impoundments, rather than in the banks, could also result in the elimination of water available for stock uses and use by native plant and animal life dependent on it. For these reasons, the impoundments have significant, not minimal, downstream impacts and impacts on groundwater and surface water quality and quantity. A chart detailing the capacity of these impoundments is enclosed for your review.

b. Impacts Associated with the N-Aquifer

The nationwide permit regulations require an examination of cumulative as well as individual impacts under § 330.1(d). In adopting these regulations, the Corps stressed that the district engineer should require an individual permit "whenever he determines that an activity would have more than minimal adverse impacts, either individually or cumulatively." 56 Fed. Reg. 59110 (Nov. 22, 1991) (emphasis added). For this reason, the cumulative impacts of PCC's withdrawals from

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the N-aquifer must also be considered in the authorization formula.

PCC withdraws approximately 4,400 acre feet, or 1,433,735,600 gallons of pristine groundwater annually from the N-aquifer, beneath the Hopi and Navajo reservations for purposes of slurring coal from the Black Mesa Mine. The water in the N-aquifer, if not withdrawn, helps to sustain springs, seeps, streams, and washes which are sacred to the Hopi Tribe and is essential to supporting wetlands and wildlife habitat. These withdrawals, like the impoundments, disrupt the natural hydrological system and reduce the amount of water reaching Hopi land.

The longstanding Hopi concerns over these withdrawals were recently underscored by the U.S. Geological Survey, which found that the available information does not provide any assurance that the withdrawals will not have a serious adverse impact on the hydrologic system and environment. The Survey reported that the available model "is not well suited to address [Hopi] concerns about adverse effects on individual waters and springs." Indeed, the Survey cautioned that the model "should be viewed as highly uncertain even at the regional scale." An accompanying memorandum notes that the available data "is not sufficient to answer the concerns of the Hopi regarding short-term impacts on wetlands, riparian wildlife habitat, and spring flows at individual springs," many of which play an important religious role, but notes that there is evidence that spring discharge in some areas with winter base flow have diminished since the mining operations began. A copy of this report and memorandum are enclosed.

Given this situation, it is difficult to understand how the Corps could conclude that the cumulative hydrologic impacts from the impoundments and groundwater withdrawals are "minimal." And where, as here, the Corps must reach such a conclusion, it must initiate an individual permitting process to ensure that the activities under consideration do not increase the existing cumulative hydrological and environmental impacts. While the Corps may not be in a position to regulate the groundwater withdrawals, it can and should ensure that the impoundments do not exacerbate the downstream impacts of such withdrawals.

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c. Impacts on Tribal Rights

Section 7 of the Nationwide Permit Conditions, located at 33 C.F.R. part 330, provides that no authorization under a nationwide permit shall be valid to the extent that it or its operation "impair[s] reserved tribal rights." The rights referred to in the regulation include, but are not limited to, water rights. Because of the Corps' specific duty to protect tribal property pursuant to this regulation, and because of the trust relationship that exists between the United States and the Tribe, discussed *infra* in section D, the Corps has a heightened duty to protect the water resources of the Tribe from impairment. Only by requiring an individual permit of PCC and gathering sufficient information on the impacts of PCC's impoundments on tribal property will the Corps be able to fulfill its trust obligation toward the Hopi Tribe. ✓

2. Benefits Associated with Requiring an Individual Permit

The benefits associated with requiring PCC to obtain one individual permit for all of the impoundments are numerous. The requirement of an individual permit would allow for more time to conduct a proper evaluation of the impacts. Such evaluation could include field work, the gathering of comments, and evaluating site-specific impacts of larger impoundments. The permit process would also provide more information on the impoundments, such as their effect on wetlands, riparian vegetation, wildlife habitat, surface flows and groundwater; the amount of water retained by them; the extent of evaporative loss associated with them; and their cumulative impacts, when considered in conjunction with the mine-related groundwater withdrawals.

The individual permitting process would also provide more time for the consideration of alternatives to the impoundments, such as the modification, dewatering, or elimination of impoundments where practicable. The consideration of these alternatives would be consistent with the general policy of 40 C.F.R. § 230.10(a), which is to avoid the discharge of fill material through the use of alternatives. Finally, the

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requirement of an individual permit would allow for the development of a water management system which better replicates the natural drainage pattern.

C. Lack of SMCRA Authorization

We would also like to point out that, with respect to the Black Mesa Mine, PCC is lacking the necessary Surface Mining Control and Reclamation Act, or SMCRA, authorization to proceed under Nationwide Permit No. 21. In order to qualify for Nationwide Permit No. 21, activities must be authorized by the Department of the Interior's SMCRA program. Such authorization is required, according to statements made by the Corps in adopting the nationwide permit regulations, because the program "addresses environmental concerns" and requires the "use of best technology currently available" to minimize adverse impacts to wildlife and water quality. 56 Fed. Reg. 14604 (April 10, 1991). ✓

Authorization under SMCRA is an indication that OSM has reviewed and approved the activity at issue and has issued a permit in accordance with this approval. Because no SMCRA permit is currently in effect for the Black Mesa Mine, the impoundments associated with this mine cannot qualify under Nationwide Permit No. 21. *ruiz*

D. Trust Responsibility to the Hopi Tribe

The need for an individual permit and mitigation of downstream impacts is buttressed by the federal government's unique trust responsibility to the Hopi Tribe. See Winters v. United States, 207 U.S. 564 (1908); Pyramid Lake Paiute Tribe v. Morton, 354 F. Supp. 252 (D.D.C. 1972). This trust responsibility, which applies to all federal agencies, has been characterized as imposing a fiduciary obligation upon the United States of the "highest responsibility and trust" with respect to tribal property, including water resources. Seminole Nation v. United States, 316 U.S. 286, 1297 (1942).

As illustrated by the Supreme Court's decision in Morton v. Ruiz, 415 U.S. 199 (1974), this trust responsibility has a procedural as well as a substantive component. The court held in Ruiz that the Bureau of Indian Affairs ("BIA") was required to provide welfare

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benefits to unemployed Indians living off their reservation. The holding of the court in Ruiz was based in part on its finding that the BIA's failure to publish its eligibility requirements for general assistance was inconsistent with its "distinctive obligation of trust incumbent upon the Government in its dealings with" Indians. Id. at 236.

The use of the trust responsibility in Ruiz demonstrates the need for an individual permit here. In Ruiz, procedural regularity was required by specific statutes and regulations, such as the Administrative Procedure Act. By basing its decision on the trust responsibility as well, the court mandated that agencies must show scrupulous regard for procedural fairness where Indian rights may otherwise be compromised. //

A number of lower courts have likewise ruled that the federal government's fiduciary obligations raise the standards of procedural fairness for administrative decisionmaking involving Indians. See, e.g., Oglala Sioux Tribe v. Andrus, 603 F.2d 707, 721 (8th Cir. 1979) (enjoining BIA's failure to follow informal policy of consulting with Tribe); Gold v. Confederated Tribes of Warm Springs, 478 F. Supp. 190, 198 (D. Ore. 1979) ("procedural errors are particularly significant in the context of the government's special obligations to Indians").

In the present context, procedural fairness is best achieved by reviewing all impoundments, pre- and post-1984 included; initiating the individual permitting process; gathering additional information on environmental impacts under the auspices of the permitting process; and requiring the elimination, modification, and/or dewatering of impoundments, as appropriate, to protect downstream flows. Only by following these steps can the Corps ensure that the trust relationship is given its due weight and the impacts of PCC's proposed activities in waters of the United States receive full and fair consideration.

* * *

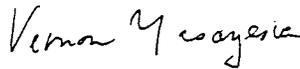
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The suggestions discussed above represent an appropriate and environmentally sound approach to addressing the hydrologic system problems associated with PCC's impoundments.

I have enclosed a copy of a videotape of a representative sample of these impoundments for your review. I trust that this video will provide you with a more accurate sense of the magnitude of these impoundments and the resulting impact on the surrounding hydrologic system.

If you have any questions regarding our comments, please do not hesitate to contact me.

Sincerely,



Vernon Masayesva
Chairman
The Hopi Tribe

Enclosures

PRE-OCTOBER 5, 1984 STRUCTURES¹
(in acre-feet)

Impoundment No.	Total Storage Capacity	10 Yr, 24 hr storm Capacity	Excess Capacity
<u>Black Mesa</u>			
EM-A1	18.6	5.98	12.62
EM-B	13.20	3.3	9.90
EM-SS	7.25	2.10	5.15
J3-A	6.30	4.59	1.71
J3-B	7.92	6.01	1.91
J3-F	7.64	4.39	3.25
J7-A	2.39	2.21	0.18
J7-B	9.94	2.10	7.84
J7-B1	25.16	21.88	3.28
J7-CD	5.73	1.75	3.98
J7-E	2.54	0.36	2.18
J7-F	4.65	3.35	1.30
J7-G	3.20	1.65	1.55
J7-H	4.82	2.45	2.37
J7-I	16.8	8.59	8.21
J7-J	1.72	0.96	0.76
J7-K	5.53	3.38	2.15
J7-L	11.65	8.68	2.97
J7-M	10.4	5.91	4.49
J7-N	4.82	3.19	1.63

¹ We have not yet confirmed whether all of these impoundments are located in waters of the United States.

Impoundment No.	Total Storage Capacity	10 Yr, 24 hr Storm Capacity	Excess Capacity
J7-O	3.37	2.39	0.98
Pond 1	1.67	0.41	1.26
Pond 2			
Combined	5.04	2.8	2.24
Pond 1 and 2			
J7-P	13.76	10.14	3.62
J7-Q	3.42	0.31	3.11
J7-Q1	0.29	0.057	0.24
J77-B	11.68	10.00	1.68
LF-1	9.5	3.660	5.84
LF-2	4.80	3.100	1.70
LF-3	351.4	75.80	275.60
M8-A	9.17	0.86	8.31
MW-B	4.79	1.44	3.35
N3-D	5.36	0.48	4.88
N5-E	8.70	1.890	6.81
N5-G and N5-A			
Combined	34.30	9.54	24.76
N6-B	5.76	2.57	3.19
N6-C	7.55	6.04	1.51
N6-D	3.85	2.13	1.72
N6-D1	33.70	22.87	10.83
N6-E	17.0	8.53	8.47
N6-I	12.69	8.50	4.19
N6-T1	3.11	2.06	1.05
N6-T2	10.64	7.39	3.25
WW-3	12.5	1.16	11.34
WW-5	6.69	1.31	5.38
WW-6			
Pond 1	7.83	1.91	5.92
Pond 2	29.90	1.66	28.24
Pond 1 and 2			
Combined	37.73	3.57	34.16

Impoundment No.	Total Storage Capacity	10 Yr, 24 hr, Storm Capacity	Excess Capacity
WW-9			
Pond 1	2.1	unknown	unknown
Pond 2	21.7	unknown	unknown
Pond 1 and 2 Combined	23.8	17.84	5.96
WW-9A	2.75	0.71	2.04
WW-9C	10.4	0.75	9.65
WW-9D	15.3	0.59	14.71
J3-D	19.8	13.44	6.36
J3-E	18.80	15.9	2.90
J3-G	308.9	193.8/144.3	115.10
Kayenta			
J16-B	6.03	unknown	unknown
J16-C	1.72	unknown	unknown
J16-D	7.24	3.24	4.00
J16-E	6.39	1.0	5.39
J16-F	9.34	2.04	7.30
J16-H	3.43	1.60	1.83
J16-I	19.95	4.10	15.85
J16-J	2.90	0.81	2.09
J16-K	11.20	4.44	6.76
J19-F1	unknown	unknown	unknown
J19-F2	unknown	unknown	unknown
J19-F3	unknown	unknown	unknown
J21-B	19.70	10.25	9.45
J21-E	unknown	unknown	unknown
J21-J	19.63	31.50	-11.87
J28-A	20.45	unknown	unknown
J28-B	19.8	1.45	18.35
J28-C	13.4	2.90	10.50
J28-D	17.6	2.79	14.81

Impoundment No.	Total Storage Capacity	10 Yr, 24 hr, Storm Capacity	Excess Capacity
J28-E	19.92	unknown	unknown
J28-F	17.97	unknown	unknown
J28-G	19.22	4.26	14.96
J28-H	23.10	unknown	unknown
J28-I	15.91	unknown	unknown
KM-A	4.58	unknown	unknown
KM-A2	4.54	4.52	0.02
KM-A3	14.59	1.11	13.48
KM-A2 and KM-A3 Combined	19.13	5.63	13.50
KM-B	4.40	1.66	2.74
KM-C	3.23	2.57	0.11
KM-D	3.23	1.78	1.45
KM-C and KM-D Combined	5.91	4.35	1.56
KN-E	11.10	7.86	3.24
KN-E1	1.71	1.37	0.34
KN-TPB	4.29	2.77	1.52
KN-TPB1	0.46	0.4	0.06
NI-AC	14.53	9.80	4.73
NI-D	14.47	10.22	4.25
NI-E	7.18	4.90	2.28
NI-F	8.58	7.04	1.54
NI-L	5.02	2.22	2.80
NI-M	1.17	0.59	0.58
NI-N	1.25	unknown	unknown
NI-O	10.48	7.66	2.82
N2-D	2.16	1.32	0.84
N2-E	3.41	1.18	2.23
N2-G	5.52	1.78	3.74
N7-A1	16.42	4.20	12.22
N7-B	2.56	2.19	0.37
N7-C	2.11	1.83	0.28
N7-E1	14.29	16.56	-2.27
N8-A	3.41	0.90	2.51

Impoundment No.	Total Storage Capacity	10 Yr, 24 hr Storm Capacity	Excess Capacity
N8-B	18.23	0.61	17.62
N8-B1	20.73	22.18	-1.45
N8-B and N8-B1 Combined	38.96	22.79	16.17
N10-A	14.13	39.10	-24.97
N10-B	9.60	3.16	6.44
N10-B1	3.42	0.71	2.71
N10-C	3.80	.80	3.00
N10-E	17.78	unknown	unknown
N10-F	unknown	unknown	unknown
N10-G1	unknown	unknown	unknown
N11-B	unknown	unknown	unknown
N11-C	unknown	unknown	unknown
N11-D	unknown	unknown	unknown
N11-E	unknown	unknown	unknown
N11-F	unknown	unknown	unknown
N12-A	2.98	unknown	unknown
N12-F	3.94	unknown	unknown
N12-G	0.62	unknown	unknown
N12-II	0.25	unknown	unknown
N12-I	0.33	unknown	unknown
N12-J	0.32	unknown	unknown
N12-M	6.33	0.507	1.26
N12-N	2.07	0.80	1.27
N13-B	1.50	unknown	unknown
N13-C	4.0	3.44	0.56
N13-D	6.08	4.92	1.16
N13-E	6.41	2.57	3.84
N14-A	21.0	13.35	7.65
N14-B	6.70	4.82	1.88
N14-C	27.3	6.52	20.78
N14-M	4.75	1.87	2.88
N14-N	5.56	unknown	unknown
N14-O	5.08	3.48	1.60
N14-P	2.63	1.09	1.54
N14-Q	8.34	4.34	4.00

Impoundment No.	Total Storage Capacity	10 Yr, 24 hr Storm Capacity	Excess Capacity
N14-R	0.12	0.052	0.07
N14-S	1.74	0.91	0.90
TPF-A	18.60	9.87	8.73
TPF-B	3.33	0.20	3.13
TPF-C	5.01	0.63	4.38
TPF-E	5.91	6.54	-0.63
TS-A	6.26	2.77	3.49
TS-B	1.25	0.61	0.64
WW-2	16.2	1.80	14.40
WW-9B	5.38	0.84	4.54
J16-G	19.65	1.11	18.54
N1 (PIL)	unknown	unknown	unknown
N2-RA	72.0	34.69	37.31
N2-RB	74.22	39.29	35.93
N2-RC	118.1	115.1	3.00
N7-D	755.88	624.20	131.68
N7-E	18.99	2.47	16.52
N8 (PIL)	unknown	unknown	unknown
N10-A1	12.20	0.98	11.22
N10-D	14.70	7.91	6.79
N11-A	24.61	37.96	-13.35
N12-C	unknown	3.86	unknown
(pond A)	unknown	0.71	unknown
(pond B)	unknown	unknown	unknown
Total of pond A and B	31.60	4.57	27.03
TPF-A	0.37	0.31	0.06
TPF-D	20.60	10.70	9.90
TPC-A	0.37	0.31	0.06
J16-A	333.00	123.0	210.00
J16-L	484.0	359.0	125.00
KM-FWP	21.7	NA	unknown
N14-D	559.3	167.5	391.80

<u>Impoundment</u> <u>NO.</u>	<u>Total</u> <u>Storage</u> <u>Capacity</u>	<u>10 yr,</u> <u>24 hr</u> <u>Storm</u> <u>Capacity</u>	<u>Excess</u> <u>Capacity</u>
N14-E	66.20	13.10	53.10
N14-F	61.10	42.0	19.10
N14-G	185.0	51.0	134.00

POST-OCTOBER 5, 1984 STRUCTURES
(in acre-feet)

Impoundment No.	Total Storage Capacity	10 yr, 24 hr Storm Capacity	Excess Capacity
Black Mesa			
N5-A	15.52	0.540	14.98
N5-A1	12.77	7.32	5.45
N5-G	18.780	9.00	9.78
N6-G	9.08	2.89	6.19
N6-H	1.20	0.35	0.85
N6-J	4.85	2.30	2.55
N6-K	unknown	unknown	unknown
N6-K1	24.85	21.50	3.35
N6-L	unknown	unknown	unknown
J2-A	unknown	unknown	unknown
N6-T1	3.11	2.06	1.05
N6-T2	10.64	7.39	3.25
WW-A	14.36	0.60	13.76
J27-A	14.76	10.130	4.63
J7-S	unknown	unknown	unknown
J7-R	unknown	unknown	unknown
J19-D	unknown	unknown	unknown
J7-JR	unknown	unknown	unknown
Kayenta			
N5-F	4.15	2.65	1.48
N11-A1	unknown	unknown	unknown
N12-C1	19.95	3.06	16.89
N12-C2	19.62	42.86	-23.24
N10-D1	14.28	3.98	10.3
N10-A2	24.59	2.5	22.09
N11-G, G1, G2, G3	unknown	unknown	unknown

Impoundment No.	Total Storage Capacity	10 Yr, 24 hr Storm Capacity	Excess Capacity
N10-G,	unknown	unknown	unknown
G1			
J16-G1	19.14	25.21	1-6.07
N14-H	227.4	75.0	152.4
J21	unknown	unknown	unknown
Haul Road/ Culvert			
J19-A	unknown	unknown	unknown
J19-RB	52.50	42.40	10.1
J19-RA	45.90	37.90	8.0
J21 West	unknown	unknown	unknown
Haul Road/ Culvert			
J21-T4	unknown	unknown	unknown
J21 East	unknown	unknown	unknown
Haul Road/ Culvert			
J21-T1	unknown	unknown	unknown
J19-B	unknown	unknown	unknown
J21-L, I1	unknown	unknown	unknown
J21-H	unknown	unknown	unknown
J21-G	unknown	unknown	unknown
J21-F	unknown	unknown	unknown
J21-C, C21	19.70	46.30	-26.6
J21-A, A1	33.12	23.08	10.04
(combined)			

1 Figure reflects data for Impoundment J21-C2 only.

water withdrawal from the N-aquifer for the coal slurry pipeline. The findings of OSM's CHIA and EIS would not preclude or negate any results of the long-term water study conducted pursuant to the lease amendments.

The major focal points of the CHIA were on modeling the effects of the mine and community pumping on the N-aquifer system, on the effects of impoundments on streamflow and the alluvial aquifers, and impacts on the quality of water in the spoils and alluvium. Since the preparation of the CHIA, OSM has analyzed additional water quality data through September 1989 that support the conclusions of the CHIA.

SURFACE-WATER QUANTITY

General.--Impacts of surface mining on surface-water quantity in the area of the Black Mesa-Kayenta mine complex would occur from alterations of runoff-producing characteristics (including infiltration capacity and permeability of reclaimed spoil materials) and from the extensive use of impoundments to control runoff and sediment yield on the disturbed areas. These impacts are described below.

Proposed Hydraulic Structures

Diversions and Channels.--PCC has constructed five major diversions and has proposed to build another one in 1992. Four of the existing diversions would need remedial work to bring them into compliance with the applicable performance standards. This work would be done in the first 5 years of the permit term. In addition, PCC proposes the use of gradient terraces, downdrains, and reclamation channels to control runoff in the surface-stabilization plan. PCC has proposed 68 reclamation channels for draining the primary watersheds. The primary location of the gradient terraces, downdrains, and reclamation channels would be determined before rough grading is initiated. The final drainage configuration would be designed after rough grading is complete, as dictated by design procedures outlined in PCC's Reclamation Surface-Stabilization Design Handbook. The design procedures in this handbook were developed by PCC based on site-specific conditions at the Black Mesa-Kayenta minesite, in cooperation with and approved by OSM, and their implementation would ensure that the surface drainage system would be stable; therefore, impacts would be minor over the short and long term. PCC has proposed to construct a major diversion of Reed Valley Wash in 1992. PCC has agreed to meet OSM's design specifications and submit a revised final design plan to OSM for approval 1 year before construction.

Impoundments.--The primary purpose of the impoundments would be to reduce the environmental impacts associated with increased sediment loading of surface runoff on disturbed lands. The sediment ponds trap the sediment-laden water so that it does not cause adverse impacts downstream. Once the sediment settles from the water and EPA effluent criteria are met, the clean water is discharged from the sediment pond back into the stream channel. The primary impacts from the sediment ponds associated with the mining operation would be an improvement of water quality, slight water loss due to evaporation, increase in local baseflow and a decrease in peak runoff volume.

PCC proposed to construct (after 1985) 80 additional impounding structures, including 2 MSHA-regulated impoundments, 73 temporary sedimentation ponds, 2 permanent impoundments, and 3 temporary impoundments. (See table IV-1.) In addition, PCC is required to perform remedial work on existing impoundments and sedimentation ponds to bring them into compliance with the applicable performance standards. These structures would be upgraded during the first 5 years of the permit term; priority of the work would be based on the importance of the remedial work.

PCC proposes to remove 32 sedimentation pond structures that were constructed prior to the end of 1985. Twenty of the ponds have each been made unnecessary because of construction of other sedimentation ponds that control runoff from the same area, and 12 ponds control runoff from road areas. Roads by themselves are not considered disturbed areas under the Federal program [30 CFR 816.46(a)(2)(i)] and PCC is, therefore, not required to pass runoff from these roads through a siltation structure, so long as the roads are designed and constructed to the performance standards for roads [30 CFR 816.150]. Impacts from the removal of these ponds would be minor. These structures are scheduled for removal and reclamation over the first 3 years of the permit period.

The proposed impoundments are designed to retain the runoff produced by the 10-year, 24-hour precipitation event or more. Thus, the immediate impact of the impoundments would be to retain all runoff from the 10-year, 24-hour and smaller events and to attenuate flows resulting from larger events (reduce peak discharge rates and total discharge).

The effect of this water retention on surface flows at downstream locations would depend on the volume of water retained relative to the volume produced from the total drainage area above the impoundment site. These volumes, in turn, are proportional to the drainage areas tributary to the impoundment. The impact of reduced runoff would be reflected as a change in

Table IV-1.--Existing and proposed impoundments

Structure type	Existing (through 1985)	Existing; need remedial work	To be built (1986-2011)	Permanent impoundments for postmining land use
MSHA-regulated structures	9	1	¹ 2	9
Sedimentation ponds (including redundant structures)	135	103	73	² 20
Permanent impoundments	3	0	³ 2	5
Temporary impoundments	4	2	3	
Pre-SMCRA impoundments	⁴ 16	⁵ 1	0	16
Premining impoundments	⁶ 8	-	-	⁶ 8
Total	175	107	80	58

¹The Wild Ram Valley Dam was built in 1986, but for the purpose of the EIS analysis, it is considered to be a proposed structure.

²20 small sediment ponds will be upgraded and left as permanent impoundments.

³J-19RA and J-19RB to be built solely for postmining land uses.

⁴Impoundments constructed prior to enactment of SMCRA to facilitate mining and reclamation.

⁵Pond J3-G would be converted to a sedimentation pond and left as a permanent impoundment.

⁶Impoundments shown on premining and postmining water supply drawings map Nos. 85322 and 85324.

downstream peak discharges. This impact would be mitigated by discharging of water from the impoundments after it meets effluent criteria specified in the EPA NPDES permit. In addition, PCC has been required to develop a plan for maintaining periodic discharge from the impoundments. (See Appendix B.)

The average concentration of sediment (suspended solids) occurring naturally in the runoff upstream from the mine-related disturbance on Coal Mine Wash is 56,770 mg/L, the maximum is 400,300 mg/L. For Moenkopi Wash, the average is 34,600 mg/L, the maximum is 176,000 mg/L. For Dinnebito Wash, the average is 54,000 mg/L and the maximum is 240,000 mg/L. For Yellow Water Canyon, the average is 83,000 mg/L and the maximum is 880,000 mg/L. For Yazzie Wash, the average is 29,000 mg/L and the maximum is 59,000 mg/L. Water discharging from the sediment ponds after treatment would have a concentration of 70 mg/L. Therefore, there would be a large improvement of water quality as a result of the sediment ponds.

In cases where channels have cut into the Wepo Formation, the stored impoundment water may seep

back into the adjacent alluvium and thereby bypass the dam embankment to the downchannel alluvium. Depending on the depth to which the embankment foundations are cut into the alluvium, some of the stored water would also seep beneath the embankments to the downchannel alluvium. The effect of such seepage would be to "meter" stored runoff past the impoundments at a rate such that most of it could infiltrate into the downstream alluvium and, thus, augment alluvial water levels and local baseflow in the periods between storms. Under PCC's existing NPDES permit, impoundment dewatering by pumping would represent an increased "metering rate." The "metered" water would help maintain alluvial water levels and would result in somewhat larger surface base flows. In effect, the water initially retained in the impoundments would be regained in subsequent downstream flows at more usable rates and would be of better quality. OSM concludes that the short- and long-term impact on surface water flow from the impoundments would be minor.

Moenkopi Wash Basin.—Potential impacts of impoundments on surface-water quantity were assessed on the two principal washes draining the proposed permit area (Moenkopi Wash and Dinnebito Wash) at

1980 to 1985, and because the increase in controlled area through 1996 is projected to be only about one-third the increase added prior to 1985. For Moenkopi Wash below Coal Mine Wash, a slight increase in alluvial water levels is anticipated through 1996, due to the increase in Coal Mine Wash water levels and due to NPDES discharges from impoundments. After mining and reclamation are completed, all except the permanent impoundments would be removed, and their sites would be reclaimed. OSM concludes that the short- and long-term impact on alluvial water levels from the proposed mining would be both beneficial and minor.

Permanent Impoundments.--Sixteen impoundments built prior to the implementation of SMCRA (referred to by PCC as permanent internal impoundments, or PII's, in the PAP and herein) would be left as postmining land use features. One of these (J3-G) would be converted for current mining-related use; however, the remaining 15 would not be used in support of ongoing mining activities. In addition, three permanent impoundments previously approved under SMCRA would be left as permanent water supplies. The PII's are located in the N-1, N-8, J-1, and J-3 coal resource areas. In addition, 21 existing impoundments, proposed to be converted to permanent impoundments, are located throughout the mining disturbance. The proposed permanent impoundments would have the characteristics defined in table IV-2. (See plate 3.) Many of these structures existed prior to 1986; therefore, their impacts were considered in OSM's CHIA. PCC has committed to make appropriate modifications to the temporary impoundments to meet the permanent impoundment performance standards at 30 CFR 816.49.

The nine MSHA impoundments and other proposed permanent impoundments located in upper Moenkopi Wash basin would not be reclaimed after reclamation is completed and water yield from 55.5 square miles of upper Moenkopi Wash basin (1,770 acre-feet) would remain under impoundment control on a permanent basis to provide water for the designated postmining land uses. Dinnebito Wash has 3.2 square miles of watershed controlled by proposed permanent impoundments (126 acre-feet). It was further assumed that the Alternative 1 plan for dewatering of permanent impoundments to maintain the 10-year, 24-hour storage capacity would be discontinued after reclamation is completed. The total capacity of these permanent impoundments would be about 1,000 acre-feet. The permanent impoundments would control about 13 percent of the runoff from upper Moenkopi Wash basin after mining. This level of retention is close to the 12 percent of runoff retained by impoundments through 1985.

As there were no observable decreases in alluvial water levels prior to 1985, OSM concludes that the short- and long-term impacts from the proposed permanent impoundments would be minor. OSM has included a permit condition to require PCC to submit and implement a plan for periodic release of water from selected impoundments. PCC would also be required to monitor the downstream effects of releases. Based upon these results, adjustments would be made in the postmining land use plan (that is, number of permanent impoundments) if necessary. (See Appendix B.)

Moenkopi Wash Basin at Moenkopi, Arizona.--The drainage area above this site is 1,660 square miles, and the proposed permit area is located approximately 56 channel miles upstream from the site. In terms of runoff response, this drainage area must be considered a "large" basin. Table III-4 indicates that, at the maximum, only 13 percent of the annual direct runoff produced by this drainage area would be affected by the impoundments planned for the proposed permit area. The permanent impoundments would control a maximum of 10 percent of the runoff. The impoundments would most affect the small runoff events: those produced by 10-year, 24-hour and all smaller precipitation events. These events would be temporarily retained by the impoundments; larger events would be only partly retained. But even without impoundments, the small events would partially or totally be absorbed by the alluvium before reaching the Moenkopi site and would thus be unavailable as usable surface flow. (See discussion of drainage basin size in chapter III, section C.) Therefore, it is unlikely that the impoundments would have any major effect on runoff-generated surface flows at this site.

The USGS water-data record available for the site supports this conclusion. The record was divided into pre-impoundment and impoundment periods, 1974-78 and 1979-83, respectively, to evaluate hydrologic conditions before and after the start of extensive, continuous mining activity and impoundment construction at the complex in 1979. Mean annual discharge, flow duration, length of zero flow periods, and temporal distribution of zero flow periods were used to evaluate impacts at this site (OSM CHIA, 1989).

Examination of the available discharge record suggests that the discharge regime (surface-water quantity) at the Moenkopi Wash at Moenkopi site is independent of the activities occurring on the proposed permit area. No statistically significant differences between the periods immediately before and after the start of impoundment construction in 1979 were found in the records of mean annual discharge, flow duration, length of zero flow periods, or temporal distribution of zero flow periods (section 3.1.1.6, CHIA). In addition, the relative sizes of the maximum projected impound-

ENVIRONMENTAL CONSEQUENCES

IV-13

Table IV-2.—Characteristics of proposed permanent impoundments

Structure	Storage capacity (acre-ft)	Drainage area (acres)
J2-A	178	2,655
J7-DAM	669	5,366
J16-A	333	2,676
J16-L	484	6,355
N14-D	559	1,830
N14-F	61	376
N14-G	185	1,479
N14-H	227	1,650
J19-RA	-	779
J19-RB	-	813
J7-JR	185	3,822
J3-E	18.8	250
J3-D	19.8	316
J3-G	² 308.9	241
J16-G	19.7	270
N5-A	13.6	546
N7-D(ES)	751	775
N7-E(ES)	18.2	238
N10-A1	12.2	700
N10-D	14.7	286
N12-C	31.6	848
N11-G	55	879
N11-A	38	494
N10-G	30	466
N6-K	45	442
J21-I	19.1	¹ 778
J21-C	19.7	¹ 788
J21-A	19.6	¹ 542
J7-R	30	325
TPF-D	20.6	330
TPF-A	18.6	219
Total	4,385.1	37,534

¹Located in Dinnebito Wash drainage.²J3-G is a pre-SMCRA permanent impoundment that would be upgraded for use as a sedimentation pond and would remain as a permanent impoundment.

ment-controlled areas at the proposed permit area (70 square miles) and the inherent discontinuous nature of runoff response of large basins such as this, suggest that most water quantity impacts originating on the proposed permit area would be largely dissipated before reaching the Moenkopi site. (See the "Hydrology" section of this EIS, chapter III, "Effects of Drainage Basin Size on Surface Flows.")

The expected evaporation from reservoirs in the Black Mesa area is about 50 inches of water per year (Kohler and others, 1959). The proposed permanent ponds have a combined surface area at the emergency spillway elevation of about 120 acres. The water-surface area exposed to evaporation would be less than the 120 acres because the ponds would not be full at all times, and not all ponds would fill each year. The maximum possible evaporation would be about 1,000 acre-feet. A more precise estimate cannot be made because of the pond filling uncertainties, the variable seepage losses to the alluvial ground water, and the fact that many of the ponds would not contain water during the full year. The estimated annual evaporation is expected to be less than 250 acre-feet, which is about 3 percent of the flow recorded at Moenkopi.

OSM concludes that both short- and long-term impacts of mining at the proposed permit area on the surface-water quantity at Moenkopi would be negligible.

Dinnebito Wash Basin.--Disturbance within Dinnebito Wash basin is not scheduled to begin until 1989, so there is no mining-affected period upon which to base impact projections, as was done for Moenkopi Wash basin. The physiography of Dinnebito Wash basin, however, is similar to that of Moenkopi Wash basin, with the Wepo Formation tributary to the alluvium in the ephemeral Dinnebito Wash. Similar types of impacts to the surface-water resource could be expected to occur. Annual water yields would probably be of similar magnitudes, and downgradient alluvial water levels would also reflect any major changes due to impoundment construction. Impacts to the surface-water quantity of Dinnebito Wash basin were estimated on the basis of its projected impoundment-controlled area, by use of the same trends and projections that were used in Moenkopi Wash basin.

Upper Dinnebito Wash Basin.--Impoundment construction in Dinnebito Wash would begin in 1989 and would continue through 2000. Reclamation of the structures would begin in 2011. The maximum net impoundment-controlled area planned for Dinnebito Wash is 4.55 square miles and is proposed to be in place from the year 2000 through 2010, when impoundment reclamation would begin (OSM CH1A, 1989). The maximum impoundment-controlled area represents

about 9 percent of the 53-square-mile upper Dinnebito Wash basin. This compares to a maximum impoundment-controlled area of 70 square miles, or about 27 percent, of upper Moenkopi Wash basin.

On a percentage basis, the maximum proposed controlled area within upper Dinnebito Wash basin represents about one-third of that proposed within upper Moenkopi Wash basin. Therefore, impacts within Dinnebito Wash basin should be commensurate with the impacts expected for the upper Moenkopi Wash basin. In addition, mining activity within Dinnebito Wash basin is scheduled to be a decade shorter in duration, which should tend to minimize impacts as compared to those in Moenkopi Wash basin.

As in Moenkopi Wash basin, the overriding factor affecting impacts downstream from the proposed permit area is the size of the disturbed or controlled area relative to the total basin size, and the associated effect on water yield to offsite streamflow. About 90 percent of upper Dinnebito Wash basin would remain unaffected by mining. In the worst case, all the water produced on the controlled area would be initially retained in the impoundments. However, through increased alluvial water levels due to subsequent seepage of this water past dam embankments into the alluvium, and due to impoundment dewatering, much of the retained volume would be regained. Approximately 3.2 square miles of upper Dinnebito Wash basin would remain under impoundment control on a permanent basis to provide water for the designated postmining land uses (three of the impoundments are listed in table IV-2). Thus, less than 6 percent of the water yield of upper Dinnebito Wash basin would be retained.

OSM would require continuation of off-lease monitoring in both Moenkopi and Dinnebito Washes. (See Appendix B). OSM concludes that the short- and long-term impact on surface-water quantity on this site from mining under Alternative 1 would be negligible.

Alternative Water Sources.--PCC proposes to leave a total of 99 water sources after mining to support the postmining land use of livestock grazing and wildlife habitat. The source types break down as follows:

Source Type	Number
Water Impoundments (including pre-SMCRA ponds)	58
Springs	24
Wells	17
Total	99

PCC performed a field inventory to locate pre-1986 water sources within and adjacent to the proposed

permit area. This field inventory was done during the summer of 1988. The basis for the inventory was previously published inventories of water sources. PCC found that five of the pre-1986 wells appeared to have been abandoned and that three others identified by the literature could not be found within the proposed permit area. Eleven functional wells were found. Based on the field inventory, the number of water sources that existed prior to 1986 are:

Source Type	Number
Water Supply Ponds (including 16 pre-SMCRA ponds and 8 pre-mining ponds)	24
Springs	25
Wells	<u>11</u>
Total	60

Mining would destroy two wells and one spring. PCC proposes to provide 34 additional water supply ponds and 6 wells. Pond and well water sources destroyed by mining would have a replacement source within 1 mile of the original location. The one spring (site 97, located in the northwest corner of N-14 area) that would be destroyed cannot be replaced with a spring. However, there would be four permanent impoundments (N14-D, N14-F, N14-G, and N14-H) and an existing spring (site 111) within about 7,000 feet of its location.

OSM acknowledges that local residents of the lease area were using existing water sources for domestic purposes. Data available on the water-source chemistry indicated it was of marginal quality and typically would not meet the EPA secondary drinking water standards. PCC has replaced these water supplies with water from the N-aquifer at public water stands. These N-aquifer water sources would be turned over to the Navajo Tribe at the conclusion of mining. This alternate domestic supply meets the current drinking water standards. Livestock and wildlife supplies would be replaced with permanent impoundments. The short- and long-term impact on water sources would be minor.

High levels of selenium have been detected in the overburden and interburden at the Black Mesa/Kayenta mine. Selenium, at certain concentrations, can be toxic to wildlife, livestock, and humans, and so there is some concern regarding the potential for selenium to be present in the impoundments proposed for wildlife and livestock use. PCC has monitored for selenium in impoundment water at the mine. The detection levels ranged from 0.001 to 0.010 mg/L through 1985. Since late 1985, detection limits have been lowered to 0.001 mg/L to coincide with the livestock water-quality criteria. To date, selenium has not been detected in pond water by using these detection limits. Addition-

ally, OSM is requiring PCC to set detection limits for all trace metals within established guidelines. (See Appendix B.) OSM is also requiring PCC to include selenium and boron in its spoil sampling program, which would identify toxic levels in materials proposed as topsoil substitutes. (See Appendix B.) PCC's commitment to place at least 4 feet of nontoxic material at the spoil surface for revegetative purposes should prevent surface runoff from dissolving large quantities of selenium and transporting it to the permanent impoundments for ingestion by wildlife and livestock.

OSM concludes that the short- and long-term impact on wildlife and livestock from potentially high levels of selenium in the proposed permanent impoundments would be minor.

Mining Effects on Water Rights and Reservation Water Usage.--Water rights for the Navajo and Hopi reservations are currently before the Arizona court system for adjudication. OSM has focused on the effects of mining on water available for use on the two reservations. As discussed below, these impacts are found to be minor. OSM acknowledges that both tribes, as well as other parties, have claims to use of the existing water resources. It is assumed that the issue of reservation water rights would be resolved by the courts before final bond release on the proposed permanent impoundments. OSM's condition to the permit requires PCC to implement a plan to release water and monitor streamflow downstream from selected impoundments. This monitoring effort would create a basis for operating the permanent impoundments. If the outcome of water claims requires modification to the permanent impoundments, PCC would be required to revise its reclamation plan accordingly.

The permanent impoundments that would be left for the proposed postmining land use of grazing and wildlife are potential legitimate water uses. The permanent impoundments are designed to replace preexisting water sources and to further support the more intensive grazing proposed after mining. If court decisions or the monitoring results indicate that the impoundments need to be operated differently than proposed, or reduced in number, a permit revision would be required.

As documented in the CHIA and in the "Ground water" section of this EIS, the effects due to impoundment construction and pumping from aquifers would have a minor impact on other water uses outside the proposed permit area, such as at Moenkopi. Local wells within the proposed permit area that are destroyed by mining have been and would continue to be replaced by PCC by drilling to deeper aquifers, such as the N-aquifer.



REPLY TO
ATTENTION OF:

Office of the Chief
Regulatory Branch

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE, SUITE 760
PHOENIX, ARIZONA 85012-1936

April 21, 1997

Peabody Western Coal Company
ATTN: Brian P. Dunfee
1300 South Yale Street
Flagstaff, Arizona 86001

File Number: 934-1154-RJD

Dear Mr. Dunfee:

This is in reply to your December 12, 1996 letter requesting renewal of Peabody Western Coal Company's Section 404 Nationwide Permit for the Black Mesa and Kayenta coal mines located approximately 19 miles southwest of Kayenta, Navajo County, Arizona.

The Corps of Engineers has determined, under Section 404 of the Clean Water Act (33 U.S.C. 1344), that your proposed activity complies with the terms of Nationwide Permit No. 21, "Surface Coal Mining Activities." See Enclosure 1 for complete description. You must comply with the enclosed regional, general, and 404 only conditions (Enclosure 1) and the compliance statement (Enclosure 2).

Furthermore, you must comply with the following Special Condition:

a. The permittee shall comply with all requirements and conditions in the letter of water quality certification that the U.S. Environmental Protection Agency signed on April 4, 1997. This certification demonstrates that the permittee has complied with Section 401(a) of the Clean Water Act. A copy of this letter is enclosed.

This letter of verification is valid until the current nationwide permit program expires on February 11, 2002. If Nationwide Permit No. 21 is otherwise modified, reissued, or revoked before February 11, 2002 it is incumbent on you to remain informed of changes to this nationwide permit.

A nationwide permit does not grant any property rights or exclusive privileges. Also, it does not authorize any injury to the property or rights of others or authorize interference with any existing or proposed Federal project. Furthermore, it does not obviate the need to obtain other Federal, state, or local authorizations required by law.

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-2-

Thank you for participating in our regulatory program. If you have questions, please contact Robert J. Dummer at (602) 640-5385 x 224.

Sincerely,

~~ORIGINAL SIGNED BY~~
Cindy Lester
Chief, Arizona Section
Regulatory Branch

Enclosures

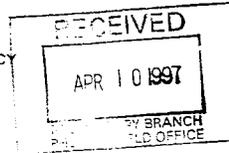
CF:

1. File Copy (934-1154-RJD) 2. Clipboard Copy (LA) 3. Clipboard Copy (AZ)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION IX
 75 Hawthorne Street
 San Francisco, CA 94105-3901
 APR 04 1997



(In reply, refer to CWA 401-9707)

Mr. Brian Dunfee
 Peabody Western Coal Company
 1300 South Yale Street
 Flagstaff, AZ 86001

Dear Mr. Dunfee:

EPA has reviewed your January 8, 1997 request to renew your Clean Water Act § 401 certification for Peabody Western Coal Company's construction of sediment impoundments on the Black Mesa and Kayenta Mines leasehold on Navajo Nation and Hopi Tribe lands (93-1154-RD). It is our understanding that the proposed work will comply with the terms and conditions of the nationwide permits. If this project is determined not to comply with the nationwide permit and an individual permit is required, EPA reserves the right to re-examine this project. EPA grants § 401 certification for this project provided the following conditions are adhered to:

- 1) No disposal of construction material, demolition wastes, wastewater, contaminated well water, or any other pollutant is authorized by this certification.
- 2) Construction materials placed within the 100-year flood plain must be free of substances that can cause or contribute to the pollution of waters of the United States. The applicant shall take necessary steps to ensure that contaminated materials are not used for fill within the 100-year flood plain.
- 3) Pollution from the operation, repair, maintenance, and storage of equipment shall be removed from and properly disposed outside the 100-year floodplain. Spills shall be cleaned up and properly disposed of outside the 100-year floodplain. Substances such as fuel, lubricants, solvents, and other hazardous materials should not be stored within this area if they cannot be removed within 12 hours' notice of impending flood.
- 4) Water used in dust suppression should not contain contaminants that could violate surface water or aquifer standards.
- 5) The applicant shall take necessary steps to minimize channel and bank erosion within waters of the United States during and after construction. The applicant shall submit construction plans that document how channel and bank erosion are to be minimized.

- 6) Runoff from disturbed soils, improvements, and other alterations of the natural environment must not cause an exceedence of applicable water quality standards.
- ✓ 7) Water released from impoundments must meet applicable water quality standards and NPDES permit requirements. | *
- 8) The applicant shall compile a summary of existing information regarding impoundments to include a summary the physical characteristics (i.e., dimensions, date of construction, amount of water stored), all water quality data, and any available information regarding spills or releases of impoundments. This summary shall be made availbale to interested parties.
- 9) Annual reporting of shall be conducted to document that conditions 1 through 3 of this certification, related to disposal or release of materials, are met. Any accidental spills or releases, and corrective measures taken, pertaining to conditions 1 through 3 should be documented in this annual report. Annual reports shall be submitted to EPA and made availbale to interested parties.
- 10) Quarterly monitoring of impoundments and water used for dust suppression shall be conducted. Sampling and analyses are to be conducted under an approved quality assurance/quality control plan. Samples collected should be analyzed for organics, inorganics, and metals. The applicant shall submit to EPA a sampling plan that identifies sampling schedules, specific analytes, sampling procedures, and quality assurance procedures.

Should you have questions regarding this certification, please call James Romero of my staff at (415) 744-1967.

Sincerely,



Daniel Meer, Chief
CWA Compliance Branch

cc: *Roberts_Dummer, COE
Nat Mutongla, Director,
Water Resources Program, The Hopi Tribe
Sadie Hoskie, Director, Navajo Environmental Protection
Administration, Navajo Nation
Rick Williamson, Office of Surface Mining

*LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS*

**CERTIFICATION OF COMPLIANCE WITH
DEPARTMENT OF THE ARMY NATIONWIDE PERMIT**

Permit Number: 934-1154-RJD

Date of Issuance: April 21, 1997

Name of Permittee:

Peabody Western Coal Company
ATTN: Brian Dunfee
1300 South Yale Street
Flagstaff, Arizona 86001

Upon completion of the activity authorized by this permit, sign this certification and return it with an original signature to the following address:

U.S. Army Corps of Engineers
ATTENTION: Regulatory Branch(934-1154-RJD)
3636 North Central Avenue Suite 760
Phoenix, Arizona 85012-1936

Please note that your permitted activity is subject to a compliance inspection by a Corps of Engineers' representative. If you fail to comply with this Nationwide permit you may be subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced Nationwide permit has been completed in accordance with the terms and conditions of said permit.

Signature of Permittee

Date

Enclosure 2



**US Army Corps
of Engineers®**

NATIONWIDE PERMIT NUMBER 21

**"SURFACE COAL MINING
ACTIVITIES"**

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) the U.S. Army Corps of Engineers published the "Final Notice of Issuance, Reissuance, and Modification of Nationwide Permits" in the Federal Register (61 FR 65873) on December 13, 1996. Modifications and additions to the Nationwide Permit general conditions were published in the "Final Notice of Issuance and Modification of Nationwide Permits" in the Federal Register (65 FR 12818) on March 9, 2000. They became effective on June 7, 2000, and are included with this permit. Nationwide Permit (NWP) Number 21, effective February 11, 1997 is as follows:

21. **Surface Coal Mining Activities.** Activities associated with surface coal mining activities provided they are authorized by the Department of the Interior, Office of Surface Mining (OSM), or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977 and provided the permittee notifies the District Engineer in accordance with the "Notification" general condition. The notification must include an OSM or state approved mitigation plan. The Corps, at the discretion of the District Engineer, may require a bond to ensure success of the mitigation, if no other Federal or state agency has required one. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. (Also see 33 CFR 330.1(e)) (Sections 10 and 404)

401 Certification

Tribal waters	Individual 401 Certification Required. (All Reservations)
Unique waters	Individual 401 Certification Required.
Other waters	Certified.

"Tribal waters" means all waters of the United States occurring on tribal lands.

"Unique Water" means a surface water which has been classified as an outstanding state resource water by the Director of ADEQ under R18-11-112. The following are classified as unique waters on non-tribal lands:

- a. The West Fork of the Little Colorado River, above Government Springs;
- b. Oak Creek, including the West Fork of Oak Creek;
- c. Peoples Canyon Creek, tributary to Santa Maria River;
- d. Burro Creek, above its confluence with Boulder Creek;
- e. Francis Creek, Mohave and Yavapai counties;
- f. Bonita Creek, tributary to the upper Gila River;
- g. Cienega Creek, from I-10 bridge to Del Lago Dam, Pima County;
- h. Aravaipa Creek, from confluence of Stowe Gulch to the downstream boundary of the Aravaipa Canyon Wilderness Area;
- i. Cave Creek and South Fork of Cave Creek (Chiricahua Mountains), from headwaters to the Coronado National Forest boundary; and
- j. Buehman Canyon Creek, from headwaters [Lat. 32 24 55.5 N, Long. 10 39 43.5 W] to approximately 9.8 miles downstream [Lat. 32 24 31.5 N, Long. 110 32'08 W].

"Other waters" means all waters of the United States, on non-tribal lands for which 401 Certification has not been specifically denied.

The following general conditions must be followed in order for any authorization by an NWP to be valid:

1. **Navigation.** No activity may cause more than a minimal adverse effect on navigation.
2. **Proper Maintenance.** Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
3. **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.
4. **Aquatic Life Movements.** No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.
5. **Equipment.** Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.
6. **Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions which may have been added by the division engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the State or tribe in its Section 401 water quality certification and Coastal Zone Management Act consistency determination.
7. **Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System: or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).
8. **Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
9. **Water Quality.** (a) In certain States and tribal lands an individual 401 water quality certification must be obtained or waived (See 33 CFR 330.4(c)).
(b) For NWP's 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the State or tribal 401 certification (either generically or individually) does not require or approve a water quality management plan, the permittee must include design criteria and techniques that will ensure that the authorized work does not result in more than minimal degradation of water quality. An important component of a water quality management plan includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality. Refer to General Condition 21 for stormwater management requirements. Another important component of a water quality management plan is the establishment and maintenance of vegetated buffers next to open waters, including streams. Refer to General Condition 19 for vegetated buffer requirements for the NWP's.
10. **Coastal Zone Management.** In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see Section 330.4(d)).
11. **Endangered Species.** (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which will destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS, the District Engineer may add species-specific regional endangered species conditions to the NWP's.
(b) Authorization of an activity by a nationwide permit does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. Fish and Wildlife Service and National Marine Fisheries Service or their world wide web pages at <http://www.fws.gov/r9endspp/endspp.html> and http://www.nmfs.gov/prot_res/esahome.html, respectively.
12. **Historic Properties.** No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.
13. **Notification.** (a) Timing: Where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a preconstruction notification (PCN) as early as possible. The District Engineer must determine if the PCN is complete within 30 days of the date of receipt and can request the additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the District Engineer will notify the prospective permittee

- PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received from the District Engineer. The prospective permittee shall not begin the activity:
- (1) Until notified in writing by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or
 - (2) If notified in writing by the District or Division Engineer that an individual permit is required; or
 - (3) Unless 45 days have passed from the District Engineer's receipt of the complete notification and the prospective permittee has not received written notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).
- (b) Contents of Notification: The notification must be in writing and include the following information:
- (1) Name, address, and telephone numbers of the prospective permittee;
 - (2) Location of the proposed project;
 - (3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity; and
 - (4) For NWPs 7, 12, 14, 18, 21, 34, 38, 39, 40, 41, 42, and 43, the PCN must also include a delineation of affected special aquatic sites, including wetlands, vegetated shallows (e.g., submerged aquatic vegetation, seagrass beds), and riffle and pool complexes (see paragraph 13(f));
 - (5) For NWP 7, Outfall Structures and Maintenance, the PCN must include information regarding the original design capacities and configurations of those areas of the facility where maintenance dredging or excavation is proposed.
 - (6) For NWP 14, Linear Transportation Crossings, the PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the United States and a statement describing how temporary losses of waters of the United States will be minimized to the maximum extent practicable.
 - (7) For NWP 21, Surface Coal Mining Activities, the PCN must include an Office of Surface Mining (OSM) or state-approved mitigation plan.
 - (8) For NWP 27, Stream and Wetland Restoration, the PCN must include documentation of the prior condition of the site that will be reverted by the permittee.
 - (9) For NWP 29, Single-Family Housing, the PCN must also include:
 - (i) Any past use of this NWP by the individual permittee and/or the permittee's spouse;
 - (ii) A statement that the single-family housing activity is for a personal residence of the permittee;
 - (iii) A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring 1/4 acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exist on the property. For parcels greater than 1/4 acre in size, a formal wetland delineation must be completed in accordance with the current method required by the Corps. (See paragraph 13(f));
 - (iv) A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one-mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;
 - (10) For NWP 31, Maintenance of Existing Flood Control Projects, the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five-year (or less) maintenance plan. In addition, the PCN must include all of the following:
 - (i) Sufficient baseline information so as to identify the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection or drainage is not increased;
 - (ii) A delineation of any affected special aquatic sites, including wetlands; and,
 - (iii) Location of the dredged material disposal site.
 - (11) For NWP 33, Temporary Construction, Access, and Dewatering, the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.
 - (12) For NWPs 39, 43, and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization of losses of waters of the United States were achieved on the project site.
 - (13) For NWP 39, Residential, Commercial, and Institutional Developments, and NWP 42, Recreational Facilities, the PCN must include a compensatory mitigation proposal that offsets unavoidable losses of waters of the United States or justification explaining why compensatory mitigation should not be required.
 - (14) For NWP 40, Agricultural Activities, the PCN must include a compensatory mitigation proposal to offset losses of waters of the United States.
 - (15) For NWP 45, Stormwater Management Facilities, the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with State and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the United States.
 - (16) For NWP 44, Mining Activities, the PCN must include a description of all waters of the United States adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the United States, a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities).
 - (17) For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work.
 - (18) For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.
 - (19) For NWPs 12 and 14, where the proposed work involves discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within 100-year floodplains (as identified on FEMA's Flood Insurance Rate Maps or FEMA-approved local floodplain maps), and for NWPs 29, 39, 40, 42, 43, and 44, where the proposed work involves discharges of dredged or

FEMA or FEMA-approved local floodplain construction requirements.

(c) Form of Notification: The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(19) of General Condition 13. A letter containing the requisite information may also be used.

(d) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the PCN to expedite the process and the District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary.

Any compensatory mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the District Engineer will expeditiously review the proposed compensatory mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the nationwide permit.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) that the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the District Engineer determines that mitigation is required in order to ensure no more than minimal adverse effects on the aquatic environment, the activity will be authorized within the 45-day PCN period, including the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level. When conceptual mitigation is included, or a mitigation plan is required under item (2) above, no work in waters of the United States will occur until the District Engineer has approved a specific mitigation plan.

(e) Agency Coordination: The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse effects on the aquatic environment to a minimal level.

For activities requiring notification to the District Engineer that result in the loss of greater than 1/2 acre of waters of the United States, the District Engineer will, upon receipt of a notification, provide immediately (e.g., via facsimile transmission, overnight mail, or other expeditious manner), a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 15 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. As required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act, the District Engineer will provide a response to National Marine Fisheries Service within 30 days of receipt of any Essential Fish Habitat conservation recommendations. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

(f) Wetlands Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps. For NWP 29 see paragraph (b)(9)(iii) for parcels less than 1/4 acre in size. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 45-day period will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

14. **Compliance Certification.** Every permittee who has received a Nationwide permit verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter. The certification will include: a.) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions; b.) A statement that any required mitigation was completed in accordance with the permit conditions; and c.) The signature of the permittee certifying the completion of the work and mitigation.

15. **Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3 acre.

16. **Water Supply Intakes.** No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

17. **Shellfish Beds.** No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

Unsuitable Material. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material used for construction or repair. Dredged or fill material must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7.9. Mitigation. The project must be designed and constructed to avoid and minimize adverse effects to waters of the United States to the maximum extent practicable at the project site (i.e., on site). Mitigation will be required when necessary to ensure that the adverse effects to the aquatic environment are minimal. The District Engineer will consider the factors discussed below when determining the acceptability of appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment that are more than minimal.

(a) Compensatory mitigation at a minimum 1:1 ratio will be required for all wetland impacts requiring a PCN. Consistent with National policy, the District Engineer will establish a preference for restoration of wetlands to meet the minimum compensatory mitigation ratio, with preservation used only in exceptional circumstances.

(b) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed.

(c) The District Engineer will require restoration, creation, enhancement, or preservation of other aquatic resources in order to offset the authorized impacts to the extent necessary to ensure that the adverse effects on the aquatic environment are minimal. An important element of any compensatory mitigation plan for projects in or near streams or other open waters is the establishment and maintenance, to the maximum extent practicable, of vegetated buffers next to open waters on the project site. The vegetated buffer should consist of native species. The District Engineer will determine the appropriate width of the vegetated buffer and in which cases it will be required. Normally, the vegetated buffer will be 25 to 50 feet wide on each side of the stream, but the District Engineer may require wider vegetated buffers to address documented water quality concerns. If there are open waters on the project site and the District Engineer requires compensatory mitigation for wetland impacts to ensure that the net adverse effects on the aquatic environment are minimal, any vegetated buffer will comprise no more than 1/3 of the remaining compensatory mitigation acreage after the permanently filled wetlands have been replaced on a one-to-one acreage basis. In addition, compensatory mitigation must address adverse effects on wetland functions and values and cannot be used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the NWRPs (e.g., for NWP 39, 1/4 acre of wetlands cannot be created to change a 1/2 acre loss of wetlands to a 1/4 acre loss; however, 1/2 acre of created wetlands can be used to reduce the impacts of a 1/3 acre loss of wetlands). If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed.

(d) To the extent appropriate, permittees should consider mitigation banking and other appropriate forms of compensatory mitigation. If the District Engineer determines that compensatory mitigation is necessary to offset losses of waters of the United States and ensure that the net adverse effects of the authorized work on the aquatic environment are minimal, consolidated mitigation approaches, such as mitigation banks, will be the preferred method of providing compensatory mitigation, unless the District Engineer determines that activity-specific compensatory mitigation is more appropriate, based on which is best for the aquatic environment. These types of mitigation are preferred because they involve larger blocks of protected aquatic environment, are more likely to meet the mitigation goals, and are more easily checked for compliance. If a mitigation bank or other consolidated mitigation approach is not available in the watershed, the District Engineer will consider other appropriate forms of compensatory mitigation to offset the losses of waters of the United States to ensure that the net adverse effects of the authorized work on the aquatic environment are minimal.

20. Spawning Areas. Activities, including structures and work in navigable waters of the United States or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

→ **21. Management of Water Flows.** To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and must not increase water flows from the project site, relocate water, or redirect water flow beyond preconstruction conditions. In addition, the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows.

→ **22. Adverse Effects From Impoundments.** If the activity, including structures and work in navigable waters of the United States or discharge of dredged or fill material, creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.

23. Waterfowl Breeding Areas. Activities, including structures and work in navigable waters of the United States or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

24. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

25. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, State natural heritage sites, and outstanding national resource waters or other waters officially designated by a State as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Except as noted below, discharges of dredged or fill material into waters of the United States are not authorized by NWRPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the United States may be authorized by the above NWRPs in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the

General Condition 13, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The District Engineer may authorize activities under these NWP's only after he determines that the impacts to the critical resource waters will be no more than minimal.

26. Fills Within 100-Year Floodplains. For purposes of this general condition, 100-year floodplains will be identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.

(a) **Discharges Below Headwaters.** Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the 100-year floodplain at or below the point on a stream where the average annual flow is five cubic feet per second (i.e., below headwaters) are not authorized by NWPs 29, 39, 40, 42, 43, and 44. For NWPs 12 and 14, the prospective permittee must notify the District Engineer in accordance with General Condition 13 and the notification must include documentation that any permanent, above-grade fills in waters of the United States within the 100-year floodplain below headwaters comply with FEMA or FEMA-approved local floodplain construction requirements.

(b) **Discharges in Headwaters** (i.e., above the point on a stream where the average annual flow is five cubic feet per second).
 (1) **Flood Fringe.** Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the flood fringe of the 100-year floodplain of headwaters are not authorized by NWPs 12, 14, 29, 39, 40, 42, 43, and 44, unless the prospective permittee notifies the District Engineer in accordance with General Condition 13. The notification must include documentation that such discharges comply with FEMA or FEMA-approved local floodplain construction requirements.

(2) **Floodway.** Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the floodway of the 100-year floodplain of headwaters are not authorized by NWPs 29, 39, 40, 42, 43, and 44. For NWPs 12 and 14, the permittee must notify the District Engineer in accordance with General Condition 13 and the notification must include documentation that any permanent, above grade fills proposed in the floodway comply with FEMA or FEMA-approved local floodplain construction requirements.

Section 10 Condition (Colorado River only). The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

Definitions

Best management practices: Best Management Practices (BMPs) are policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural. A BMP policy may affect the limits on a development.

Compensatory mitigation: For purposes of Section 10/404, compensatory mitigation is the restoration, creation, enhancement, or in exceptional circumstances, preservation of wetlands and/or other aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Creation: The establishment of a wetland or other aquatic resource where one did not formerly exist.

Enhancement: Activities conducted in existing wetlands or other aquatic resources which increase one or more aquatic functions.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Farm tract: A unit of contiguous land under one ownership which is operated as a farm or part of a farm.

Flood Fringe: That portion of the 100-year floodplain outside of the floodway (often referred to as "floodway fringe.")

Floodway: The area regulated by Federal, state, or local requirements to provide for the discharge of the base flood so the cumulative increase in water surface elevation is no more than a designated amount (not to exceed one foot as set by the National Flood Insurance Program) within the 100-year floodplain.

Independent utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases are not built can be considered as separate single and complete projects with independent utility.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that include the filled area and other waters that are permanently adversely affected by flooding, excavation, or drainage as a result of the regulated activity. Permanent adverse effects include permanent above-grade, at-grade, or below-grade fills that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is the threshold measurement of the impact to existing

Determining whether a project may qualify for an NWP, it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and values. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to original construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland (i.e., a water of the United States) that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., the spring high tide line).

Open water: An area that, during a year with normal patterns of precipitation, has standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. The term "open water" includes rivers, streams, lakes, and ponds. For the purposes of the NWPs, this term does not include ephemeral waters.

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Permanent above-grade fill: A discharge of dredged or fill material into waters of the United States, including wetlands, that results in a substantial increase in ground elevation and permanently converts part or all of the waterbody to dry land. Structural fills authorized by NWPs 1, 25, 36, etc. are not included.

Preservation: The protection of ecologically important wetlands or other aquatic resources in perpetuity through the implementation of appropriate legal and physical mechanisms. Preservation may include protection of upland areas adjacent to wetlands as necessary to ensure protection and/or enhancement of the overall aquatic ecosystem.

Restoration: Re-establishment of wetland and/or other aquatic resource characteristics and function(s) at a site where they have ceased to exist, or exist in a substantially degraded state.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Steep gradient sections of streams are sometimes characterized by riffle and pool complexes. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. Pools are characterized by a slower stream velocity, a streaming flow, a smooth surface, and a finer substrate.

Single and complete project: The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers (see definition of independent utility). For linear projects, the "single and complete project" (i.e., a single and complete crossing) will apply to each crossing of a separate water of the United States (i.e., a single waterbody) at that location. An exception is for linear projects crossing a single waterbody several times at separate and distant locations; each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly-shaped wetland or lake, etc., are not separate waterbodies.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and BMPs, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream channel to increase the rate of water flow through the stream channel. Manipulation may include deepening, widening, straightening, armoring, or other activities that change the stream cross-section or other aspects of stream channel geometry to increase the rate of water flow through the stream channel. A channelized stream remains a water of the United States, despite the modifications to increase the rate of water flow.

Tidal wetland: A tidal wetland is a wetland (i.e., a water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located landward of the high tide line (i.e., spring high tide line) and are inundated by tidal waters two times per lunar month, during spring high tides.

Vegetated buffer: A vegetated upland or wetland area next to rivers, streams, lakes, or other open waters which separates the open water from developed areas, including agricultural land. Vegetated buffers provide a variety of aquatic habitat functions and values (e.g., aquatic habitat for fish and other aquatic organisms, moderation of water temperature changes, and detritus for aquatic food webs) and help improve or maintain local water quality. A vegetated buffer can be established by maintaining an existing vegetated area or planting native trees, shrubs, and herbaceous plants on land next to open waters. Mowed lawns are not considered vegetated buffers because they provide little or no aquatic habitat functions and values. The establishment and maintenance of vegetated buffers is a method of compensatory mitigation that can be used in conjunction with the restoration, creation, enhancement, or preservation of aquatic habitats to ensure that activities authorized by NWPs result in minimal adverse effects to the aquatic environment. (See General Condition 19.)

Vegetated shallow: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: A waterbody is any area that in a normal year has water flowing or standing above ground to the extent that evidence of an ordinary high water mark is established. Wetlands contiguous to the waterbody are considered part of the waterbody.



DEPARTMENT OF THE INTERIOR
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January 11, 1993

Colonel Robert L. VanAntwerp
 District Engineer
 U.S. Army Corps of Engineers
 Los Angeles District
 Arizona Regulatory Field Office
 3636 North Central Avenue, Suite 760
 Phoenix, AZ 85012-1936
 ATTN: Robert Dummer

Re: Request for Comments Regarding Peabody Western Coal Company's Application
 for Nationwide Permit 21 (File # 93-1154-RD).

Dear Colonel VanAntwerp:

The Fish and Wildlife Service (Service) has examined the information provided by the Corps of Engineers (Corps), related to Peabody Western Coal Company's (PCC) application for a Section 404 of the Clean Water Act - Nationwide Permit No. 21 (NWP 21), for the discharge of dredge and fill into waters of the United States. We have coordinated this review with the Environmental Protection Agency. The proposed 54 permitted activities have occurred or will occur at the Black Mesa and Kayenta mines, located on the Navajo and Hopi Reservations, approximately 19 miles southwest of Kayenta, Navajo County, Arizona. The Service has several concerns about these activities, and in accordance with the extension for time authorized by the Phoenix Regulatory Branch on December 15, 1993, offers the following comments.

It appears that the activities may fail to meet the regulatory requirements as specified by the following Nationwide Permit Conditions:

Part 330, Appendix A (C)(8), "Tribal Rights"- The activities may impair tribal rights.

Part 330, Appendix A (C)(11), "Endangered Species"- The Mexican spotted owl is known to occur in the vicinity of the project area. Has the Corps made a determination regarding effect to this threatened species?

Part 330, Appendix A (C)(13), "Notification"- The regulations clearly state that the applicant must notify the District Engineer (DE) as soon as possible and shall not begin the activity (until the numerous requirements of this provision are satisfied).

The Service is concerned that potential impacts associated with these projects were not adequately evaluated, although 25 activities have already been completed. The activities appear to have more than minimal individual

We are available to meet with you in an attempt to resolve these concerns. If we can be of further assistance, please contact Don Henry or Don Metz.

Sincerely,


for Sam F. Spiller
State Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, New Mexico
(AES)
Regional Supervisor, Arizona Game and Fish Department, Mesa, Arizona
(Attn: Ron Christofferson)
Director, Arizona Game and Fish Department, Phoenix, Arizona
Regional Administrator, Environmental Protection Agency, Region IX,
San Francisco, California (Wetlands W-7-2) (Attn: Mary Butterwick)
Field Services, Arizona Department of Environmental Quality, Phoenix,
Arizona (Attn: Jack Bale)
Surface Water Certification, Arizona Department of Environmental
Quality, Phoenix, Arizona (Attn: Jim Matt)
Regulatory Branch, Army Corps of Engineers, Los Angeles, California

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Tuba City - round-up in Moenkopi Wash.

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Creator

Bill Belknap

Title

Tuba City - round-up in Moenkopi Wash.

Physical description

Black-and-white photograph, 11.5x11

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Original creation date

1941

Subjects

Horsemen and horsewomen
Cattle
Hopi Indians
Cattle drives
Rivers

Places

Moenkopi Wash (Ariz.)
Hopi Indian Reservation (Ariz.)

Collection Name

Bill Belknap

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Local call number

NAU.PH.95.55.1513

Creator

Don Lyngholm

Title

Moenkopi Wash.

Physical description

Color Slide

Use

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Original creation date

,1978

Subjects

Valleys
Floodplains
Deserts
[Desert plants](#)

Places

[Moenkopi Wash \(Ariz.\)](#)
[Navajo Indian Reservation](#)

Collection Name

Don Lyngholm

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Moenkopi Wash.

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099 Accession/Call Number : NAUPH.90.44.23

100 Photographer/s : Unidentified

245 Title/Description : Moencopi Wash

300 Physical Description: Black-and-White Photograph
Size : 8x12 cms. Height x Width

518 Original Creation Date : unknown

520 note: This is a Photographic Copy Print: YES

545 Historical Note : _____
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600 PEOPLE

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_____	_____	_____

610 Organization : _____

650 SUBJECTS:

<u>Rivers</u>	_____
_____	_____
_____	_____
_____	_____

651 Places/Location : Moencopi Wash (Ariz.)

690 LOCAL SUBJECT

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Biographic note:

Born Bernetta Williams, on February 27, 1907, Billie Williams Yost was the youngest of four children of Bill and Gertrude Williams who operated Red Lake Trading Post on the Navajo Reservation for many years. Mrs. Yost began her journalistic career with the *Winslow Mail*, and later became a newspaper reporter for Flagstaff's *Arizona Daily Sun*. In 1966, she became Coconino County Clerk of the Superior Court, an office she held until her retirement in 1975. In 1987, she was voted into the Democratic Party Hall of Fame for her contributions, dedication, and service.

Restrictions:

See the Curator of Photography regarding permission to duplicate images of the Hopi religious ceremonies.

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Presentation Photos from the Museum of Northern of Arizona

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Creator
Unknown
Title
Village of Moencopi
Physical Description
black and white photograph
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1961

Local call number
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Paul Long
Title
Iron Point / Pasture Canyon
Physical Description
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1964
Place
Moencopi Wash / Kerley valley

Museum of Northern Arizona, Photo Archives
Contact person
Tony Marinella
Phone: (928) 774-5211 ext. 212

**The United States Senate
Committee on Indian Affairs
Washington, D.C. 20510**

**Oversight hearing on the protection of
Native American sacred places as they
are affected by Department of Defense undertakings.**

**Testimony about the
Black Mesa and Kayenta Mines
submitted by Peabody Energy
June 14, 2002**

**Peabody Energy
701 Market St.
St. Louis, Missouri 63101**

PEABODY ENERGY'S BLACK MESA AND KAYENTA MINES**Black Mesa Mining Operations**

Peabody Energy owns and operates the Black Mesa and Kayenta mines in northeastern Arizona, which serve the Mohave and Navajo electric generating stations in Nevada and Arizona. The Mohave and Navajo stations contribute to the economic prosperity of the Southwest, providing electricity to more than 3.5 million families in major cities including Phoenix, Laughlin and Los Angeles.

Located on the Hopi and Navajo reservations, the Black Mesa and Kayenta mines are operated through tribal lease agreements, providing low-cost energy, creating significant jobs and maintaining a tremendous economic foundation for the Hopi and Navajo.

The Black Mesa Mine opened in 1970. It employs about 240 workers and ships nearly 5 million tons of coal each year. The mine's coal is transported to the Mohave Station through a 270-mile underground coal-water pipeline that ships the equivalent of 50,000 rail cars per year through a system that is unseen and unobtrusive. The Kayenta Mine began shipping coal in 1973. The mine employs nearly 400 workers and transports more than 8 million tons each year to the Navajo Station via an 80 mile closed loop electric rail owned and operated by the power plant consortium.

Economic Impact

Peabody is among the nation's largest private employers of Native Americans. The mines employ nearly 700 workers, and about 90 percent of the work force is Native American. Miners earn wages that average eight times higher than the per capita income for the Navajo Nation and about two times higher than Arizona's per capita income.

Together, the mines inject nearly \$2 million weekly into tribal economies in wages, benefits, royalties, taxes and charitable contributions or more than \$2 billion in direct benefits since the operations began. This revenue comprises about 80 percent of the Hopi Tribe's annual budget and more than 30 percent of the Navajo Nation's annual general budget.

PEABODY ENERGY'S BLACK MESA AND KAYENTA MINES

Compliance Record

The mines have developed an award-winning reclamation program and an extensive environmental monitoring and study program. Mined lands are reclaimed to a condition that is typically 20 times more productive for grazing than native lands. This program also includes a unique initiative to restore medicinal and cultural plants used for ceremonies and other traditional purposes. To date, more than 12,000 mined acres on Black Mesa have been reclaimed.

Mining operations must comply with 32 federal statutes established to protect human health, the environment, and archeological resources. State-of-the-art technology provides the foundation for a multi-disciplinary environmental program. The effort includes extensive monitoring of air, soil and vegetation as well as monitoring of both surface and ground water. The mines are also subject to weekly unannounced inspections and continue to maintain good compliance.

Protection of the Navajo Aquifer***Water Use***

Peabody purchases water used to convey coal to Mohave Station from the Hopi Tribe and Navajo Nation for more than \$4 million annually. The water is sourced from the vast Navajo Aquifer, an underground sandstone aquifer spanning 7,500 square miles within the Black Mesa Basin, an area about the size of Delaware. The operations use about 4,000 acre-feet of water each year primarily to convey coal to the Mohave Generating Station near Laughlin. They also supply water used at the mining complex in addition to potable water used by 200 local residents.

Study Results

Eleven major studies performed during the past 30 years conclude that during the life of the mines, less than one-tenth of 1 percent of the water stored in the aquifer will be used, which is similar to removing a cup of water from a 55-gallon drum.

PEABODY ENERGY'S BLACK MESA AND KAYENTA MINES

In addition, an October 2001 report issued by the U.S. Department of the Interior's Office of Surface Mining (OSM) concluded that the aquifer remains stable, water quality is excellent, and the impact to springs and streams caused by mining is too small to be measured.

Alternative Water Sources

While studies show that there will be no significant impacts to the Navajo Aquifer or to other water users caused by mining, Peabody respects cultural concerns associated with using the aquifer and supports development of an alternative water source that would be used in lieu of the Navajo Aquifer. Peabody is working with the owners of the Mohave Station as well as the Hopi Tribe and the Navajo Nation to identify an alternative that is suitable to all parties.

Recently, the Mohave participants have identified a secure source of water from the Lower Colorado River, which would allow lease of approximately 6,000 acre-feet of water for use at the Black Mesa operations.

The resources for constructing the water delivery system have not yet been committed and are linked to a larger decision process concerning whether the Mohave owners will proceed with upgrading the plant's emission control equipment. These discussions are ongoing and Peabody believes they can be resolved.

Protection of Surface Water Quality***Regulatory Oversight***

The U.S. Surface Mining Control and Reclamation Act requires surface coal mines to maintain a series of ponds within mining areas to ensure protection of water quality downstream. On Northern Arizona's Black Mesa, storms are typically cellular, causing extreme downpours and flash floods. The ponds capture runoff, settle the sediment and help protect water quality. The Black Mesa complex has about 150 sediment ponds throughout its 100-square-mile lease area.

PEABODY ENERGY'S BLACK MESA AND KAYENTA MINES

About 115 ponds are temporary and approximately 35 are proposed as permanent structures based on a request from the Navajo Nation to leave the ponds after mining to enhance the area for wildlife habitat and livestock grazing.

Water impoundments are recognized as the best technology to ensure protection of water quality downstream and are designed and constructed using a rigorous set of engineering standards. Under the Clean Water Act, activities associated with the construction and maintenance of impoundments are regulated by the U.S. Army Corps of Engineers, and protection of water quality is enforced by the U.S. Environmental Protection Agency (EPA).

Every aspect of the design, construction, maintenance and reclamation of the ponds is permitted through the U.S. OSM in conjunction with the U.S. Army Corps of Engineers and the U.S. EPA. The activities relating to the ponds are part of a nationwide surface mining permit that was renewed as recently as 1997. This renewal included the U.S. EPA's certification that water quality would be protected. In addition, the U.S. EPA regulates pond outflows through spillways.

Study Results

The impacts of impounding water relating to the flow of the Moenkopi and Dinnebito washes have been thoroughly studied by the U.S. OSM with input from the U.S. Army Corps of Engineers, the U.S. EPA, the Hopi Tribe and the Navajo Nation.

The U.S. OSM has concluded that there would be "negligible" impacts on the flow of the washes during the life of the operations. These findings are based on a 1990 Environmental Impact Statement (EIS) published by the U.S. OSM, which is the foundation for the mine permit. The EIS examined the mine's potential impacts to both surface and ground water resources, using a Cumulative Hydrologic Impact Assessment to ascertain impacts. (See *EIS excerpts attached*.)

PEABODY ENERGY'S BLACK MESA AND KAYENTA MINES

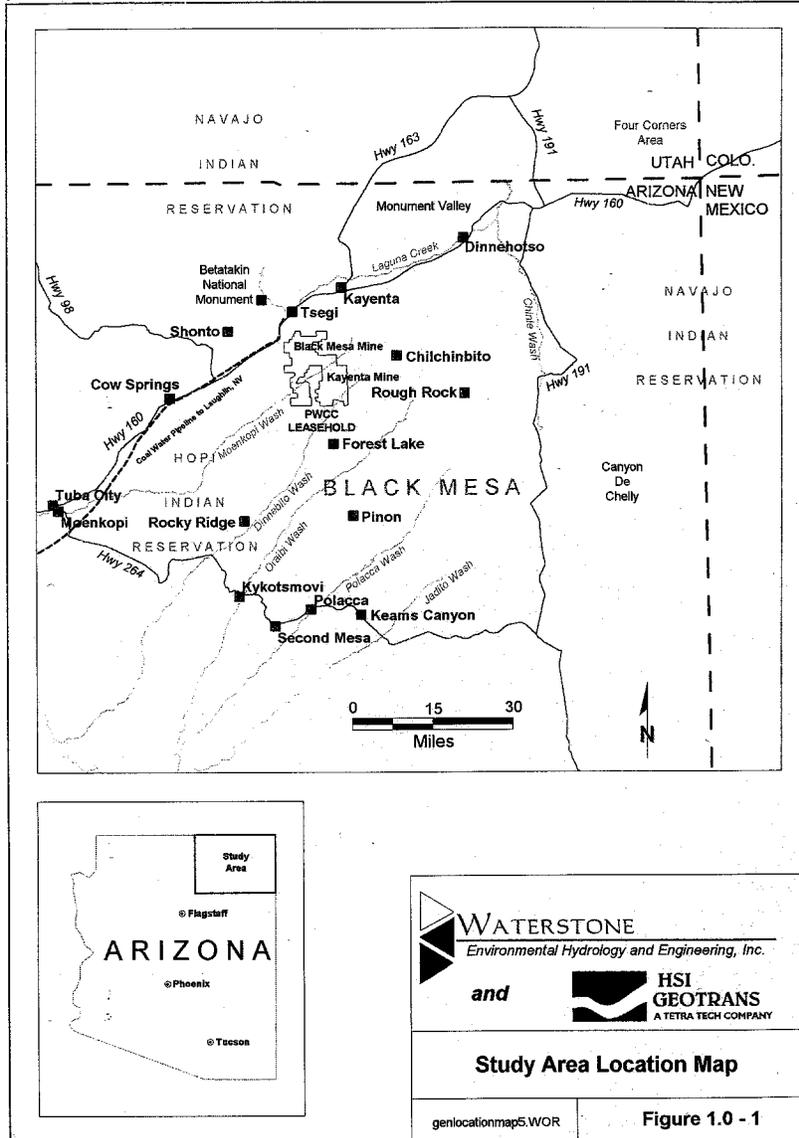
The U.S. Geological Survey also conducts continuous monitoring of flow in the Moenkopi and Dinnebito washes to assess potential impacts from mining and ensure their protection. The continuous flow record for Moenkopi Wash spans almost three decades. The U.S. OSM uses this data to develop an annual report to assess material damage to washes resulting from impounding water.

An October 2001 U.S. OSM report titled, *"The Office of Surface Mining Reclamation and Enforcement's Report on Its Review and Analysis of Peabody Western Coal Company's 1999 "Annual Hydrological Data Report"* and the U.S. Geological Survey's, *"Ground-Water, Surface-Water and Water-Chemistry Data, Black Mesa Area, Northeastern Arizona, 1999,"* concluded that there has been no material damage to washes resulting from impounding water and no material damage to the hydrologic balance of the Navajo Aquifer caused by mining.

Arizona and much of the West has experienced varying levels of drought since the 1950s, and this year has been extreme, with precipitation far below normal levels. There is a direct relationship between the level of flow in Moenkopi Wash and the amount of precipitation. In the grips of the current severe drought, flows will decrease.

Wildlife Monitoring

The Black Mesa is an extremely arid region. The ponds provide an important nesting and feeding habitat that has dramatically increased populations of migratory waterfowl and shorebirds because there is now a reliable water surface source that didn't previously exist. Extensive wildlife monitoring on Black Mesa has documented more than 200 species of birds, including waterfowl such as mallards, teal and geese.



WATERSTONE
 Environmental Hydrology and Engineering, Inc.

and **HSI GEOTRANS**
 A TETRA TECH COMPANY

Study Area Location Map

genlocationmap5.WOR **Figure 1.0 - 1**



PEABODY ENERGY

FREDRICK D. PALMER
Executive Vice President
Legal and External Affairs

701 Market Street
St. Louis, Missouri 63101-1826
314.342.7664
Fax 314.342.7614
fpalmer@peabodyenergy.com

June 14, 2002

The Honorable Daniel K. Inouye and
The Honorable Ben Nighthorse Campbell
United States Senate
Committee on Indian Affairs
838 Hart Senate Office Building
Washington, D.C. 20510

Dear Chairman Inouye and Vice Chairman Nighthorse Campbell:

Peabody Energy respectfully submits the attached testimony to the Senate Committee on Indian Affairs to be included in the record for the June 4, 2002, oversight hearing on the protection of Native American sacred places.

The comments summarize our Arizona mining activities, compliance record and the economic impacts of the operations. They also explain use of surface ponds to protect water quality as required by the U.S. Office of Surface Mining as well as our use of water from the Navajo Aquifer. We believe this information will correct and clarify statements made during the hearing about protecting sacred water and about changes in flow of the Moenkopi wash on Black Mesa, which is directly impacted by current drought conditions.

The Black Mesa and Kayenta mines are subject to extensive regulatory review from multiple federal, state and tribal agencies. The mines are properly permitted and have operated with a good compliance record on reservation lands for more than three decades. The mines provide a low-cost, reliable fuel supply for the Mohave and Navajo electric generating stations, creating nearly 700 jobs and injecting nearly \$2 million weekly in direct economic benefits into Hopi and Navajo communities.

We are extremely proud of the success of the operations and appreciate your consideration of our testimony. Please let me know if I can provide further detail about these operations to you or members of the committee.

Sincerely,

Attachments

cc: The Honorable Kelsey Begaye
Deputy Asst. Sect. George Dunlop
The Honorable Jon Kyl
The Honorable John McCain
The Honorable Wayne Taylor
Clancy Tenley
Col. Richard G. Thompson
Brent Walquist



REPLY TO
ATTENTION OF:

Office of the Chief
Regulatory Branch

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE, SUITE 760
PHOENIX, ARIZONA 85012-1936

April 21, 1997

Peabody Western Coal Company
ATTN: Brian P. Dunfee
1300 South Yale Street
Flagstaff, Arizona 86001

File Number: 934-1154-RJD

Dear Mr. Dunfee:

This is in reply to your December 12, 1996 letter requesting renewal of Peabody Western Coal Company's Section 404 Nationwide Permit for the Black Mesa and Kayenta coal mines located approximately 19 miles southwest of Kayenta, Navajo County, Arizona.

The Corps of Engineers has determined, under Section 404 of the Clean Water Act (33 U.S.C. 1344), that your proposed activity complies with the terms of Nationwide Permit No. 21, "Surface Coal Mining Activities." See Enclosure 1 for complete description. You must comply with the enclosed regional, general, and 404 only conditions (Enclosure 1) and the compliance statement (Enclosure 2).

Furthermore, you must comply with the following **Special Condition**:

a. The permittee shall comply with all requirements and conditions in the letter of water quality certification that the U.S. Environmental Protection Agency signed on April 4, 1997. This certification demonstrates that the permittee has complied with Section 401(a) of the Clean Water Act. A copy of this letter is enclosed.

This letter of verification is valid until the current nationwide permit program expires on February 11, 2002. If Nationwide Permit No. 21 is otherwise modified, reissued, or revoked before February 11, 2002 it is incumbent on you to remain informed of changes to this nationwide permit.

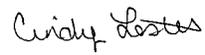
A nationwide permit does not grant any property rights or exclusive privileges. Also, it does not authorize any injury to the property or rights of others or authorize interference with any existing or proposed Federal project. Furthermore, it does not obviate the need to obtain other Federal, state, or local authorizations required by law.

352

-2-

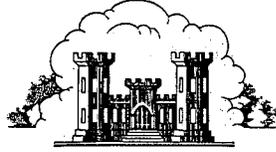
Thank you for participating in our regulatory program. If you have questions, please contact Robert J. Dummer at (602) 640-5385 x 224.

Sincerely,

A handwritten signature in cursive script that reads "Cindy Lester".

Cindy Lester
Chief, Arizona Section
Regulatory Branch

Enclosures



U.S. ARMY CORPS OF ENGINEERS

NATIONWIDE PERMIT NUMBER 21

"SURFACE COAL MINING ACTIVITIES"

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) the U.S. Army Corps of Engineers published the "Final Notice of Issuance, Reissuance, and Modification of Nationwide Permits" in the Federal Register (61 FR 65873) on December 13, 1996. Nationwide Permit (NWP) Number 21, effective February 11, 1997 is as follows:

21. **Surface Coal Mining Activities.** Activities associated with surface coal mining activities provided they are authorized by the Department of the Interior, Office of Surface Mining (OSM), or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977 and provided the permittee notifies the District Engineer in accordance with the "**Notification**" general condition. The notification must include an OSM or state approved mitigation plan. The Corps, at the discretion of the District Engineer, may require a bond to ensure success of the mitigation, if no other Federal or state agency has required one. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. (Also see 33 CFR 330.1(e)) (Sections 10 and 404)

The following Regional Conditions and Section 401 Water Quality Certifications have been adopted for non-tribal and tribal waters in Arizona:

Regional Conditions

None.

401 Certification

Tribal waters	Individual 401 Certification Required.
Unique waters	Individual 401 Certification Required.
Other waters	Certified.

"Tribal waters" means all waters of the United States occurring on tribal lands.

"Unique Water" means a surface water which has been classified as an outstanding state resource water by the Director of ADEQ under R18-11-112. The following are classified as unique waters on non-tribal lands:

- a. The West Fork of the Little Colorado River, above Government Springs;
- b. Oak Creek, including the West Fork of Oak Creek;
- c. Peoples Canyon Creek, tributary to Santa Maria River;
- d. Burro Creek, above its confluence with Boulder Creek;
- e. Francis Creek, Mohave and Yavapai counties;
- f. Bonita Creek, tributary to the upper Gila River;
- g. Cienega Creek, from I-10 bridge to Del Lago Dam, Pima County;
- h. Aravaipa Creek, from confluence of Stowe Gulch to the downstream boundary of the Aravaipa Canyon Wilderness Area;
- i. Cave Creek and South Fork of Cave Creek [Chiricahua Mountains], from headwaters to the Coronado National Forest boundary; and
- j. Buehman Canyon Creek, from headwaters [Lat. 32°24'55.5"N, Long. 10°39'43.5"W] to approximately 9.8 miles downstream [Lat. 32°24'31.5"N, Long. 110°32'08"W].

"Other waters" means all waters of the United States on non-tribal lands for which 401 Certification has not been specifically denied.

Nationwide Permit Conditions

General Conditions

The following general conditions must be followed in order for any authorization by a NWP to be valid:

1. **Navigation:** No activity may cause more than a minimal adverse effect on navigation.
2. **Proper Maintenance:** Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
3. **Erosion and Siltation Controls:** Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.
4. **Aquatic Life Movements:** No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.
5. **Equipment:** Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.
6. **Regional and Case-by-Case Conditions:** The activity must comply with any regional conditions which may have been added by the Division Engineer (see 33 CFR 330.4(c)) and with any case specific conditions added by the Corps or by the state or tribe in its section 401 water quality certification.
7. **Wild and Scenic Rivers:** No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely effect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service.)
8. **Tribal Rights:** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
9. **Water Quality Certification:** In certain states, an individual Section 401 water quality certification must be obtained or waived (see 33 CFR 330.4(e)).
10. **Coastal Zone Management:** In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see Section 330.4(d)).
11. **Endangered Species:** (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of the project, and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized.
 (b) Authorization of an activity by a nationwide permit does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. Fish and Wildlife Service and National Marine Fisheries Service or their world wide web pages at <http://www.fws.gov/> <difference> /?endspp/endspp.html and http://kingfish.spp.mnfs.gov/tmcintyr/prot_res.html#ES and Recovery, respectively.
12. **Historic Properties:** No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR part 325, appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)).

13. Notification:

(a) Timing: Where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a Pre-Construction Notification (PCN) as early as possible and shall not begin the activity:

- (1) Until notified by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or
- (2) If notified by the District or Division Engineer that an individual permit is required; or
- (3) Unless 30 days (or 45 days for NWP 26 only) have passed from the District Engineer's receipt of the notification and the prospective permittee has not received notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Notification: The notification must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed project;
- (3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity; and
- (4) For NWPs 14, 18, 21, 26, 29, 34, and 38, the PCN must also include a delineation of affected special aquatic sites, including wetlands (see paragraph 13(f));
- (5) For NWP 21—Surface Coal Mining Activities, the PCN must include an OSM or state approved mitigation plan.
- (6) For NWP 29—Single-Family Housing, the PCN must also include:
 - (i) Any past use of this NWP by the individual permittee and/or the permittee's spouse;
 - (ii) A statement that the single-family housing activity is for a personal residence of the permittee;
 - (iii) A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring 0.5 acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than 0.5 acre in size, a formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See paragraph 13(f)).

(iv) A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

(7) For NWP 31—Maintenance of Existing Flood Control Projects, the prospective permittee must either notify the District Engineer with a Pre-Construction Notification (PCN) prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:

- (i) Sufficient baseline information so as to identify the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided that the approved flood control protection or drainage is not increased;
- (ii) A delineation of any affected special aquatic sites, including wetlands; and,
- (iii) Location of the dredged material disposal site.

(8) For NWP 33—Temporary Construction, Access, and Dewatering, the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.

(c) Form of Notification: The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(7) of General Condition 13. A letter may also be used.

(d) District Engineer's Decision: In reviewing the pre-construction notification for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the pre-construction notification to expedite the process and the District Engineer will consider any optional mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects are minimal, the District Engineer will notify the permittee and include any conditions the DE deems necessary.

Any mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee elects to submit a mitigation plan, the District Engineer will expeditiously review the proposed mitigation plan, but will not commence a second 30-day (or 45-day for NWP 26) notification procedure. If the net adverse effects of the project (with the mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the nationwide permit.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submitting a mitigation proposal that would reduce the adverse effects to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions.

(e) Agency Coordination: The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(i) For NWP 14, 21, 26 (between 1 and 3 acres of impact), 29, 33, 37, and 38. The District Engineer will, upon receipt of a notification, provide immediately, e.g., facsimile transmission, overnight mail or other expeditious manner, a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37,

these agencies will then have 5 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 10 calendar days (16 calendar days for NWP 26 PCNs) before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

(ii) **Optional Agency Coordination.** For NWPs 5, 7, 12, 13, 17, 18, 27, 31, and 34, where a Regional Administrator of EPA, a Regional Director of USFWS, or a Regional Director of NMFS has formally requested general notification from the District Engineer for the activities covered by any of these NWPs, the Corps will provide the requesting agency with notification on the particular NWPs. However, where the agencies have a record of not generally submitting substantive comments on activities covered by any of these NWPs, the Corps district may discontinue providing notification to those regional agency offices. The District Engineer will coordinate with the resource agencies to identify which activities involving a PCN that the agencies will provide substantive comments to the Corps. The District Engineer may also request comments from the agencies on a case by case basis when the District Engineer determines that such comments would assist the Corps in reaching a decision whether effects are more than minimal either individually or cumulatively.

(iii) **Optional Agency Coordination, 401 Denial.** For NWP 26 only, where the state has denied its 401 water quality certification for activities with less than 1 acre of wetland impact, the EPA regional administrator may request agency coordination of PCNs between 1/3 and 1 acre. The request may only include acreage limitations within the 1/3 to 1 acre range for which the state has denied water quality certification. In cases where the EPA has requested coordination of projects as described here, the Corps will forward the PCN to EPA only. The PCN will then be forwarded to the Fish and Wildlife Service and the National Marine Fisheries Service by EPA under agreements among those agencies. Any agency receiving the PCN will be bound by the EPA timeframes for providing comments to the Corps.

(f) **Wetlands Delineations:** Wetland delineations must be prepared in accordance with the current method required by the Corps. For NWP 29 see paragraph (b)(6)(iii) for parcels less than 0.5 acres in size. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 30-day period (45 days for NWP 26) will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

(g) **Mitigation:** Factors that the District Engineer will consider when determining the acceptability of appropriate and practicable mitigation include, but are not limited to:

(i) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes;

(ii) To the extent appropriate, permittees should consider mitigation banking and other forms of mitigation including contributions to wetland trust funds, "in lieu fees" to organizations such as The Nature Conservancy, state or county natural resource management agencies, where such fees contribute to the restoration, creation, replacement, enhancement, or preservation of wetlands. Furthermore, examples of mitigation that may be appropriate and practicable include but are not limited to: Reducing the size of the project; establishing wetland or upland buffer zones to protect aquatic resource values; and replacing the loss of aquatic resource values by creating, restoring, and enhancing similar functions and values. In addition, mitigation must address wetland impacts, such as functions and values, and cannot be simply used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the NWPs (e.g., for NWP 26, 5 acres of wetlands cannot be created to change a 6-acre loss of wetlands to a 1 acre loss; however, 2 created acres can be used to reduce the impacts of a 3-acre loss.).

14. Compliance Certification: Every permittee who has received a Nationwide permit verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter and will include: a. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions; b. A statement that any required mitigation was completed in accordance with the permit conditions; c. The signature of the permittee certifying the completion of the work and mitigation.

15. Multiple Use of Nationwide Permits: In any case where any NWP number 12 through 40 is combined with any other NWP number 12 through 40, as part of a single and complete project, the permittee must notify the District Engineer in accordance with paragraphs a, b, and c on the "Notification" General Condition number 13. Any NWP number 1 through 11 may be combined with any other NWP without notification to the Corps, unless notification is otherwise required by the terms of the NWPs. As provided at 33 CFR 330.6(c) two or more different NWPs can be combined to authorize a single and complete project. However, the same NWP cannot be used more than once for a single and complete project.

Section 404 Only Conditions

In addition to the General Conditions, the following conditions apply only to activities that involve the discharge of dredged or fill material into waters of the U.S., and must be followed in order for authorization by the NWP's to be valid:

1. **Water Supply Intakes:** No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structures or adjacent bank stabilization.
2. **Shellfish Production:** No discharge of dredged or fill material may occur in areas of concentrated shellfish production, unless the discharge is directly related to a shellfish harvesting activity authorized by NWP 4.
3. **Suitable Material:** No discharge of dredged or fill material may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).
4. **Mitigation:** Discharges of dredged or fill material into waters of the United States must be minimized or avoided to the maximum extent practicable at the project site (i.e., on-site), unless the District Engineer approves a compensation plan that the District Engineer determines is more beneficial to the environment than on-site minimization or avoidance measures.
5. **Spawning Areas:** Discharges in spawning areas during spawning seasons must be avoided to the maximum extent practicable.
6. **Obstruction of High Flows:** To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).
7. **Adverse Effects From Impoundments:** If the discharge creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.
8. **Waterfowl Breeding Areas:** Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.
9. **Removal of Temporary Fills:** Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

*LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS*

**CERTIFICATION OF COMPLIANCE WITH
DEPARTMENT OF THE ARMY NATIONWIDE PERMIT**

Permit Number: 934-1154-RJD

Date of Issuance: April 21, 1997

Name of Permittee:

Peabody Western Coal Company
ATTN: Brian Dunfee
1300 South Yale Street
Flagstaff, Arizona 86001

Upon completion of the activity authorized by this permit, sign this certification and return it with an original signature to the following address:

U.S. Army Corps of Engineers
ATTENTION: Regulatory Branch(934-1154-RJD)
3636 North Central Avenue Suite 760
Phoenix, Arizona 85012-1936

Please note that your permitted activity is subject to a compliance inspection by a Corps of Engineers' representative. If you fail to comply with this Nationwide permit you may be subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced Nationwide permit has been completed in accordance with the terms and conditions of said permit.

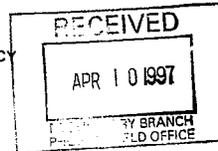
Signature of Permittee

Date

Enclosure 2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION IX
 75 Hawthorne Street
 San Francisco, CA 94105-3901
 APR 04 1997



(In reply, refer to CWA 401-9707)

Mr. Brian Dunfee
 Peabody Western Coal Company
 1300 South Yale Street
 Flagstaff, AZ 86001

Dear Mr. Dunfee:

EPA has reviewed your January 8, 1997 request to renew your Clean Water Act § 401 certification for Peabody Western Coal Company's construction of sediment impoundments on the Black Mesa and Kayenta Mines leasehold on Navajo Nation and Hopi Tribe lands (93-1154-RD). It is our understanding that the proposed work will comply with the terms and conditions of the nationwide permits. If this project is determined not to comply with the nationwide permit and an individual permit is required, EPA reserves the right to re-examine this project. EPA grants § 401 certification for this project provided the following conditions are adhered to:

- 1) No disposal of construction material, demolition wastes, wastewater, contaminated well water, or any other pollutant is authorized by this certification.
- 2) Construction materials placed within the 100-year flood plain must be free of substances that can cause or contribute to the pollution of waters of the United States. The applicant shall take necessary steps to ensure that contaminated materials are not used for fill within the 100-year flood plain.
- 3) Pollution from the operation, repair, maintenance, and storage of equipment shall be removed from and properly disposed outside the 100-year floodplain. Spills shall be cleaned up and properly disposed of outside the 100-year floodplain. Substances such as fuel, lubricants, solvents, and other hazardous materials should not be stored within this area if they cannot be removed within 12 hours' notice of impending flood.
- 4) Water used in dust suppression should not contain contaminants that could violate surface water or aquifer standards.
- 5) The applicant shall take necessary steps to minimize channel and bank erosion within waters of the United States during and after construction. The applicant shall submit construction plans that document how channel and bank erosion are to be minimized.

- 6) Runoff from disturbed soils, improvements, and other alterations of the natural environment must not cause an exceedence of applicable water quality standards.
- 7) Water released from impoundments must meet applicable water quality standards and NPDES permit requirements.
- 8) The applicant shall compile a summary of existing information regarding impoundments to include a summary the physical characteristics (i.e., dimensions, date of construction, amount of water stored), all water quality data, and any available information regarding spills or releases of impoundments. This summary shall be made availbale to interested parties.
- 9) Annual reporting of shall be conducted to document that conditions 1 through 3 of this certification, related to disposal or release of materials, are met. Any accidental spills or releases, and corrective measures taken, pertaining to conditions 1 through 3 should be documented in this annual report. Annual reports shall be submitted to EPA and made availbale to interested parties.
- 10) Quarterly monitoring of impoundments and water used for dust suppression shall be conducted. Sampling and analyses are to be conducted under an approved quality assurance/quality control plan. Samples collected should be analyzed for organics, inorganics, and metals. The applicant shall submit to EPA a sampling plan that identifies sampling schedules, specific analytes, sampling procedures, and quality assurance procedures.

Should you have questions regarding this certification, please call James Romero of my staff at (415) 744-1967.

Sincerely,



Daniel Meer, Chief
CWA Compliance Branch

cc: ~~Robert Dummer~~, COE
Nat Nutongla, Director,
Water Resources Program, The Hopi Tribe
Sadie Hoskie, Director, Navajo Environmental Protection
Administration, Navajo Nation
Rick Williamson, Office of Surface Mining



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE
PHOENIX, ARIZONA 85012-1936

JUN 1 1994

REPLY TO
ATTENTION OF:

Office of the Chief
Regulatory Branch

ENVIRONMENTAL AFFAIRS

File Number: 93-1154-RD

JUN 0 6 1994

Peabody Western Coal Company
ATTN: Brian Dunfee
1300 South Yale Street
Flagstaff, Arizona 86001

WESTERN DIVISION
PEABODY COAL COMPANY

Dear Mr. Dunfee:

The U.S. Army Corps of Engineers received and evaluated your request for authorization, under Section 404 of the Clean Water Act (33 CFR Part 330 Appendix A (B)(21)), to discharge dredged and fill material into waters of the United States at the Black Mesa and Kayenta Mines on the Navajo and Hopi Reservations approximately 19 miles southwest of Kayenta, Navajo County, Arizona.

The purpose of the discharges of dredged or fill material into waters of the United States is to operate the Black Mesa and Kayenta coal mines in conformance with the requirements of the Surface Mining Control and Reclamation Act of 1977. The operation of these two coal mines includes activities in waters of the United States such as (1) construction of sediment control structures, (2) maintenance/modification of sediment control structures, (3) removal of sediment trapped by sediment control structures, (4) reclamation of fill areas or structures when they are no longer needed, (5) channelization/relocation of watercourses, (6) road crossings, and (7) other activities required by the Office of Surface Mining, which result in discharges of dredged or fill material into waters of the United States.

Numerous parties have requested that the Corps of Engineers consider if it is appropriate to utilize Nationwide Permit 21 (NWP 21) as a mechanism to authorize the discharge of dredged or fill material into waters of the United States at the Black Mesa and Kayenta coal mines. Based on the attached documentation I have determined that the individual and cumulative net adverse environmental effects resulting from the use of this nationwide permit are minimal and that the use of NWP 21 is appropriate and is fully consistent with the intent of the Nationwide permit program. It is therefore, my conclusion that any discharge of dredged or fill material, permitted by Office of Surface Mining, will comply with the terms of NWP 21. Furthermore, you must also comply with all applicable regional, general, 404 only, and special conditions enclosed with this letter.

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If you have any questions please contact John A. Gill, Chief of Regulatory Branch at
(213) 894-5606.

Sincerely,

Charles S. Enson
Carl F. Enson, P.E.
Chief, Construction-Ops Div.
Los Angeles District

Enclosures

Copies furnished:

U.S. Environmental Protection Agency
Wetlands & Sediment Management Section (W-3-3)
ATTN: Jeff Rosenbloom
75 Hawthorne Street
San Francisco, California 94105-3901

U.S. Fish and Wildlife Service
Arizona Ecological Services State Office
ATTN: Sam F. Spiller
3616 West Thomas Road, Suite 6
Phoenix, Arizona 85019

Office of Surface Mining Reclamation and Enforcement
Federal and Indian Permitting Branch
ATTN: Rick L. Williamson
1020 15th Street
Denver, Colorado 80202

Bureau of Indian Affairs
Navajo Area Office
ATTN: Wilson Barber
P.O. Box 1060
Gallup, New Mexico 87305

The Navajo Nation
Navajo Environmental Protection Agency
ATTN: Sadie Hoskie
P.O. Box 308
Window Rock, Arizona 86515

The Navajo Nation
Minerals Departmental
ATTN: Akhtar Zamon
P.O. Box 146
Window Rock, Arizona 86515

The Hopi Tribe
Department of Natural Resources
ATTN: Nat Natungla
P.O. Box 123
Kykotsmovi, Arizona 86039

The Hopi Tribe
Office of Mining and Mineral Resources
ATTN: Norman Honie
P.O. Box 123
Kykotsmovi, Arizona 86039

Peabody Western Coal Company
ATTN: Brian Dunfee
1300 South Yale Street
Flagstaff, Arizona 86001

SPECIAL CONDITIONS APPLICABLE TO NATIONWIDE PERMIT FOR
THE GENERAL PERMITTEE'S FILE NUMBER 93-1154-RD

a. The permittee shall comply with all requirements and conditions in the letter of water quality certification that the United States Environmental Protection Agency signed on May 18, 1994. This certification demonstrates that the permittee has complied with Section 401(a) of the Clean Water Act. A copy of this letter is enclosed.



U.S. ARMY CORPS OF ENGINEERS

NATIONWIDE PERMIT NUMBER 21

"SURFACE COAL MINING ACTIVITIES"

The U.S. Army Corps of Engineers (Corps) published its final rule for the Nationwide Permit (NWP) Program in the Federal Register Friday November 22, 1991 at Part III, 33 CFR Part 330. The Nationwide Permits (NWP's) became effective January 21, 1992.

Pursuant to Section 404 of the Clean Water Act (33 USC 1344) and federal regulations (33 CFR 330 Appendix A), this is a nationwide permit for activities associated with surface coal mining activities provided they are authorized by the Department of the Interior, Office of Surface Mining, or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977 and provided the permittee notifies the District Engineer in accordance with the "Notification" general condition. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. (Also see 33 CFR 330.1(e)). (Sections 10 and 404)

The following regional conditions and Section 401 Water Quality Certifications (except for Tribal and exclusive jurisdiction Federal lands) have been adopted for the State of Arizona:

Regional Conditions

None.

401 Certification

Certification issued May 18, 1994 by
U.S. Environmental Protection Agency.

NATIONWIDE PERMIT CONDITIONS

GENERAL CONDITIONS

In addition to the regional conditions noted above, the following general conditions must be followed in order for any authorization by a nationwide permit to be valid:

1. NAVIGATION. No activity may cause more than a minimal adverse effect on navigation.
2. PROPER MAINTENANCE. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
3. EROSION AND SILTATION CONTROLS. Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.
4. AQUATIC LIFE MOVEMENTS. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.
5. EQUIPMENT. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.
6. REGIONAL AND CASE-BY-CASE CONDITIONS. The activity must comply with any regional conditions which may have been added by the division engineer (see 33 CFR 330.4(e)) and any case specific conditions added by the Corps.
7. WILD AND SCENIC RIVERS. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status. Information on Wild and Scenic Rivers may be obtained from the National Park Service and the U.S. Forest Service.
8. TRIBAL RIGHTS. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
9. WATER QUALITY CERTIFICATION. In certain states, an individual state water quality certification must be obtained or waived (see 33 CFR 330.4(c)).
10. COASTAL ZONE MANAGEMENT. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived. (see 33 CFR 330.4(d)).
11. ENDANGERED SPECIES. No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of the project and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Information on the location of threatened and endangered species and their critical habitat can be obtained from the U.S. Fish and Wildlife Service and National Marine Fisheries Service. (see 33 CFR 330.4(f))

12. **HISTORIC PROPERTIES.** No activity which may affect Historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any Historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)).

13. **NOTIFICATION.** (a) Where required by the terms of the NWP, the prospective permittee must notify the District Engineer as early as possible and shall not begin the activity:

- (1) Until notified by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
 - (2) If notified by the District or Division engineer that an individual permit is required; or
 - (3) Unless 30 days have passed from the District Engineer's receipt of the notification and the prospective permittee has not received notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).
- (b) The notification must be in writing and include the following information and any required fees:
- (1) Name, address and telephone number of the prospective permittee;
 - (2) Location of the proposed project;
 - (3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity;
 - (4) Where required by the terms of the NWP, a delineation of affected special aquatic sites, including wetlands; and
 - (5) A statement that the prospective permittee has contacted:
 - (i) The USFWS/NMFS regarding the presence of any Federally listed (or proposed for listing) endangered or threatened species or critical habitat in the permit area that may be affected by the proposed project; and any available information provided by those agencies. (The prospective permittee may contact Corps District Offices for USFWS/NMFS agency contacts and lists of critical habitat.)
 - (ii) The SHPO regarding the presence of any historic properties in the permit area that may be affected by the proposed project; and the available information, if any, provided by that agency.
- (c) The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a pre-discharge notification and must include all of the information required in (b)(1)-(5) of General Condition 13.
- (d) In reviewing an activity under the notification procedure, the District Engineer will first determine whether the activity will result in more than minimal individual or cumulative adverse environmental effects or

will be contrary to the public interest. The prospective permittee may, at his option, submit a proposed mitigation plan with the predischARGE notification to expedite the process and the District Engineer will consider any optional mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed work are minimal. The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the nationwide permits and the need for mitigation to reduce the project's adverse environmental effects to a minimal level. The District Engineer will upon receipt of a notification provide immediately (e.g. facsimile transmission, overnight mail or other expeditious manner) a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37, these agencies will then have 5 calendar days from the date the material is transmitted to telephone the District Engineer if they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 10 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects are minimal, he will notify the permittee and include any conditions he deems necessary. If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) that the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; or (2) that the project is authorized under the nationwide permit subject to the applicant's submitting a mitigation proposal that would reduce the adverse effects to the minimal level. This mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee elects to submit a mitigation plan, the DE will expeditiously review the proposed mitigation plan, but will not commence a second 30-day notification procedure. If the net adverse effects of the project (with the mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant informing him that the project can proceed under the terms and conditions of the nationwide permit.

(e) Wetlands Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 30-day period will not start until the wetland delineation has been completed.

(f) Mitigation: Factors that the District Engineer will consider when determining the acceptability of appropriate and practicable mitigation include, but are not limited to:

(1) To be practicable the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of overall project purposes;

(2) To the extent appropriate, permittees should consider mitigation banking and other forms of mitigation including contributions to wetland trust funds, which contribute to the restoration, creation, replacement, enhancement, or preservation of wetlands.

Furthermore, examples of mitigation that may be appropriate and practicable include but are not limited to: reducing the size of the project; establishing buffer zones to protect aquatic resource values; and replacing the loss of aquatic resource values by creating, restoring, and enhancing similar functions and values. In addition, mitigation must address impacts and cannot be used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the nationwide permits (e.g. 5 acres of wetlands cannot be created to change a 6 acre loss of wetlands to a 1 acre loss; however, the 5 created acres can be used to reduce the impacts of the 6 acre loss).

SECTION 404 ONLY CONDITIONS

In addition to the Regional Conditions and General Conditions, the following conditions apply only to activities that involve the discharge of dredged or fill material and must be followed in order for authorization by the nationwide permits to be valid:

1. WATER SUPPLY INTAKES. No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structures or adjacent bank stabilization.

2. SHELLFISH PRODUCTION. No discharge of dredged or fill material may occur in areas of concentrated shellfish production, unless the discharge is directly related to a shellfish harvesting activity authorized by nationwide permit 4.

3. SUITABLE MATERIAL. No discharge of dredged or fill material may consist of unsuitable material (e.g., trash, debris, car bodies, etc.) and material discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

NOTE: Bituminous materials are unsuitable constituents or principal components of any fill material, except as noted below. Asphaltic concrete and other bituminous material used to maintain or construct road pavement will not be considered unsuitable fill material provided the materials and construction meets Arizona Department of Transportation, county, or municipal specifications.

4. MITIGATION. Discharges of dredged or fill material into waters of the United States must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site), unless the DE has approved a compensation mitigation plan for the specific regulated activity.

5. SPAWNING AREAS. Discharges in spawning areas during spawning seasons must be avoided to the maximum extent practicable.

6. OBSTRUCTION OF HIGH FLOWS. To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

7. ADVERSE IMPACTS FROM IMPOUNDMENTS. If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.

8. WATERFOWL BREEDING AREAS. Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

9. REMOVAL OF TEMPORARY FILLS. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX75 Hawthorne Street
San Francisco, Ca. 94105-3901

MAY 18 1994

(In reply, refer to W-3)

Mr. Brian Dunfee
Peabody Western Coal Company
1300 South Yale Street
Flagstaff, AZ 86001

Dear Mr. Dunfee:

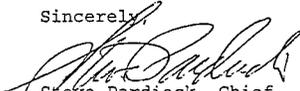
EPA has reviewed your February 9, 1994 request for Clean Water Act § 401 certification for Peabody Western Coal Company's construction of sediment impoundments on the Black Mesa and Kayenta Mines leasehold on Navajo Nation and Hopi Tribe lands (93-1154-RD). It is our understanding that the proposed work will comply with the terms and conditions of the nationwide permits. If this project is determined not to comply with the nationwide permit and an individual permit is required, EPA reserves the right to re-examine this project. EPA grants § 401 certification for this project provided the following conditions are adhered to:

- 1) No disposal of construction material, demolition wastes, wastewater, contaminated well water, or any other pollutant is authorized by this certification.
- 2) Construction materials placed within the 100-year flood plain must be free of substances that can cause or contribute to the pollution of waters of the United States. The applicant shall take necessary steps to ensure that contaminated materials are not used for fill within the 100-year flood plain.
- 3) Pollution from the operation, repair, maintenance, and storage of equipment shall be removed from and properly disposed outside the 100-year floodplain. Spills shall be cleaned up and properly disposed of outside the 100-year floodplain. Substances such as fuel, lubricants, solvents, and other hazardous materials should not be stored within this area if they cannot be removed within 12 hours' notice of impending flood.
- 4) Water used in dust suppression should not contain contaminants that could violate surface water or aquifer standards.
- 5) The applicant shall take necessary steps to minimize channel and bank erosion within waters of the United States during and after construction. The applicant shall submit construction plans that document how channel and bank erosion are to be minimized.

- 6) Runoff from disturbed soils, improvements, and other alterations of the natural environment must not cause an exceedence of applicable water quality standards.
- 7) Water released from impoundments must meet applicable water quality standards and NPDES permit requirements.
- 8) The applicant shall compile a summary of existing information regarding impoundments to include a summary the physical characteristics (i.e., dimensions, date of construction, amount of water stored), all water quality data, and any available information regarding spills or releases of impoundments. This summary shall be submitted to EPA and made availbale to interested parties.
- 9) Annual reporting of shall be conducted to document that conditions 1 through 3 of this certification, related to disposal or release of materials, are met. Any accidental spills or releases, and corrective measures taken, pertaining to conditions 1 through 3 should be documented in this annual report. Annual reports shall be submitted to EPA and made availbale to interested parties.
- 10) Quarterly monitoring of impoundments and water used for dust suppression shall be conducted. Sampling and analyses are to be conducted under an approved quality assurance/quality control plan. Samples collected should be analyzed for organics, inorganics, and metals. The applicant shall submit to EPA a sampling plan that identifies sampling schedules, specific analytes, sampling procedures, and quality assurance procedures.

Should you have questions regarding this certification, please call Gary Wolinsky of my staff at (415) 744-2015.

Sincerely,



Steve Pardieck, Chief
Watershed Protection Branch

cc: Robert Dummer, COE
Nat Nutongla, Director,
Water Resources Program, The Hopi Tribe
Sadie Hoskie, Director, Navajo Environmental Protection
Administration, Navajo Nation
Rick Williamson, Office of Surface Mining



United States Department of the Interior

OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202



In Reply Refer To:

May 17, 1990

To All Interested Parties:

Enclosed is the Office of Surface Mining Reclamation and Enforcement (OSM) final environmental impact statement (EIS) for Peabody Coal Company's (PCC) Black Mesa-Kayenta mine. The EIS consists of two volumes and an envelope with map plates. Volume 1 consists of the EIS text, revised in response to comments on the draft EIS distributed in June 1989. Volume 2 consists of the letters received during the public comment period on the draft EIS, the transcripts of the public hearings held in August 1989, and OSM's responses to these written and oral comments.

After publication of this EIS, OSM must decide to approve with conditions or to disapprove PCC's proposed permit application package (PAP), and issue a Federal permit to conduct surface coal mining and reclamation operations. The Bureau of Land Management (BLM) must make a decision to approve or disapprove PCC's proposed life-of-mine mining plan. These decisions can be made no sooner than 30 days after the Environmental Protection Agency (EPA) publishes its *Federal Register* notice of availability of the final EIS.

For additional copies of the final EIS or for further information, please contact Jerry Gavette at the OSM address given above, or by telephone at (303) 844-2938.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter A. Rutledge".

Peter A. Rutledge, Chief
Federal Programs Division

Enclosures

U.S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement



**Proposed Permit Application,
Black Mesa-Kayenta Mine,
Navajo and Hopi Indian
Reservations, Arizona**

Volume 1 - Report

Final Environmental Impact Statement
OSM-EIS-25

June 1990

Type of Action: Administrative

Prepared by the
U.S. Office of Surface Mining Reclamation and Enforcement

Director

SUMMARY

The alternative Federal actions analyzed in this final environmental impact statement (EIS) are approval with conditions or disapproval of the (1) proposed permit application package (PAP), and (2) life-of-mine mining plan for Peabody Coal Company's (PCC) Black Mesa-Kayenta mine. Pursuant to the Surface Mining Control and Reclamation Act of 1977 (SMCRA), the Office of Surface Mining Reclamation and Enforcement (OSM) has received an administratively complete PAP from PCC. The PAP includes a proposed life-of-mine mining plan, information for a Federal permit to conduct surface coal mining and reclamation operations and for compliance with other Federal laws, and delineation of the proposed permit area for PCC's Black Mesa-Kayenta mine.

Under Alternative 1, the OSM Director (or his designee) would, in consultation with the Bureau of Indian Affairs (BIA) and the Hopi and Navajo Tribes, approve PCC's permit application and issue a Federal permit to conduct surface coal mining and reclamation operations with conditions necessary to meet the requirements of SMCRA and all other applicable Federal laws. (The Federal permit to mine coal would be for a 5-year term, which could be renewed at 5-year intervals after review by OSM for the proposed permit area.) The BLM Arizona State Director (or his designee) would, in consultation with the Bureau of Indian Affairs (BIA) and the Hopi and Navajo Tribes, approve the proposed life-of-mine mining plan. Authority for OSM and BLM to take these actions is found in 30 CFR 750.6 and 25 CFR Chapter 1, respectively. Consultation responsibilities with BIA are defined under 30 CFR 750.6 and 25 CFR Part 216.

Under Alternative 2, the proposed life-of-mine mining plan and PAP would be disapproved, or the Federal permit to conduct surface coal mining and reclamation operations would not be issued. Alternative 1 is OSM's preferred alternative.

Pursuant to Section 404 of the Clean Water Act of 1977, PCC has applied to the U.S. Army Corps of Engineers (COE) for approval of a Section 404 permit for its Black Mesa-Kayenta mine. The COE participated as a cooperating agency during the preparation of the draft EIS, released to the public on June 5, 1989. COE has determined (February 7, 1990, letter to OSM) that the activities at the mine involving the discharge of dredged or fill material into waters of the United States qualified under the Section 404 Nationwide Permit, as defined by 33 U.S.C. 1344. The COE thereby has taken its Federal action and is no longer participating as a cooperating agency in the Black Mesa-Kayenta mine EIS.

BRIEF DESCRIPTION OF THE PROPOSAL

PCC, the applicant, seeks approval of its life-of-mine mining plan and the PAP and the issuance of a Federal permit to conduct surface coal mining and reclamation operations for the Black Mesa-Kayenta mine, a surface coal mining complex located approximately 125 miles northeast of Flagstaff, Arizona, and 10 miles southwest of Kayenta, Arizona. PCC holds active OSM permits to mine coal at the Black Mesa-Kayenta mining complex. PCC has operated this complex from 1970 to the present and has complete coal removal, coal preparation, and transportation systems already in place. The mining complex consists of two mining operations--the Black Mesa mine, which provides approximately 5 million tons of coal per year to the Mohave Generating Station near Bullhead City, Arizona, and the Kayenta mine, which provides approximately 7 million tons of coal per year to the Navajo Generating Station near Page, Arizona.

In its PAP, PCC proposes to encompass all the PCC-owned and operated mining and mining-related activities within a single operating unit. The proposed permit area would cover 62,753.34 acres of Hopi and Navajo tribal lands, 99 percent of which overlies Indian coal and 1 percent of which involves off-lease rights-of-way for a powerline and conveyor system.

OSM has issued two permits to PCC to mine coal at the mining complex. Permit AZ-0001 was issued for a 5-year period in February 1982. Permit AZ-0002A was issued for a 5-year period in December 1984 and was renewed for an additional 5-year period in December 1989. Both permits have been modified to allow for changes in the operation. Between 1970 and December 31, 1985, mining activities disturbed approximately 6,444 acres within these two permit areas. (See Appendix D.)

The proposed Federal permit would (1) combine the 1982 and 1984 permits under one permit, (2) authorize PCC to disturb an additional 13,787.4 acres through the remaining life of the mine, and (3) authorize PCC to upgrade a number of existing mining-related facilities to meet current Federal performance standards.

In its PAP, PCC proposes to disturb and eventually reclaim a total of 13,787.4 acres within the new proposed permit area for new mining and mining-related activity and to upgrade a number of existing mine facilities owned by PCC to meet current Federal performance standards. PCC plans to produce 292 million tons of coal from the new disturbance area between the

years 1986 and 2011. Mine-related activities would continue through 2023 (the proposed life of the mine). This would include an additional 2 years for reclamation activities and an additional 10 years for final bond release for a total of 38 years from 1986.

PCC employs more than 1,000 people at the Black Mesa-Kayenta mine, 90 percent of whom are Native Americans. Employment is projected to remain stable throughout the remaining life of the mine.

Coal would continue to be extracted by both dragline and truck-and-shovel open-pit methods and processed using existing in-place facilities owned and operated by PCC within the new proposed permit area. Processed coal would be transported from the Black Mesa mine to the Mohave Generating Station via an existing slurry pipeline, owned and operated by the Black Mesa Pipeline Company. Processed coal would be transported from the Kayenta mine to the Navajo Generating Station via the existing Black Mesa and Lake Powell Railroad, owned and operated by the Salt River Project Agriculture Improvement and Power District.

PURPOSE AND NEED FOR A FEDERAL DECISION

PCC has submitted to OSM an administratively complete permit application package (PAP); therefore, Federal law requires action by the BLM Arizona State Director and the OSM Director or their designees on whether to approve the mining plan and PAP and issue a Federal permit to conduct surface coal mining and reclamation operations. This EIS analyzes the environmental consequences of the alternative decisions, or actions, available to OSM and BLM.

The first alternative available to these Federal agencies (Alternative 1) is approval of PCC's proposed life-of-mine mining plan and PAP and issuance of a Federal permit to conduct surface coal mining and reclamation operations for the Black Mesa-Kayenta mine, with conditions as necessary to meet the requirements of SMCRA and all other applicable Federal laws. OSM has chosen this alternative as its "preferred alternative."

The second alternative available to these Federal agencies (Alternative 2) is disapproval of the proposed life-of-mine mining plan, the PAP and the Federal permit to mine coal for the Black Mesa-Kayenta mine.

COMPARISON OF ALTERNATIVES

The scope of the Black Mesa-Kayenta mine EIS was established after OSM and participating agencies and tribes had reviewed PCC's various proposals and considered all public comments received during the

scheduled scoping activities. Potential impacts to the human environment that could result from the implementation of alternatives 1 and 2 were then identified on site-specific and cumulative bases.

On the basis of information provided by the Hopi and Navajo Tribes, PCC, and BLM, mining of additional coal reserves within the existing lease boundaries and proposed permit area could occur sometime in the "reasonably foreseeable future," as defined by Council on Environmental Quality regulations (CEQ) (40 CFR 1508.7). On December 14, 1987, the Secretary of the Interior approved three new lease amendments for the removal of an additional 270 million tons of coal from the existing lease area. These coal reserves would be an addition to the 400 million tons of coal authorized for removal under the lease agreements signed by both tribes and PCC in 1964 and 1966. Therefore, development of these reserves is identified as activity relevant to the proposed action and is addressed in the cumulative analysis pursuant to 40 CFR 1508.25(a).

As a result of public comment on the draft EIS for the Black Mesa-Kayenta mine, a number of commenters requested that OSM analyze alternative means of transporting coal from the Black Mesa mine to the Mohave Generating Station. Coal is currently transported by the Black Mesa Pipeline Company by way of a coal slurry pipeline. (See Appendix D.) OSM has concluded that alternatives to the existing coal slurry pipeline and water source are outside the scope of this EIS, and that, at this time, there are no reasonable alternatives to the use of the pipeline or water source. This issue is addressed in response to comments in volume 2 and in chapter II of volume 1.

To perform an analysis of impacts of the alternative actions to surface- and ground-water resources, OSM conducted a "cumulative hydrologic impact assessment" (CHIA). The analysis is contained in OSM's CHIA document and is summarized in this EIS. The findings of the CHIA and the hydrology analysis in this EIS are based upon the available data at this time from both tribes and PCC, and surface- and ground-water monitoring performed in cooperation with the U.S. Geological Survey (USGS). As a condition of the permit, PCC would be required to provide periodic monitoring data which would be evaluated by OSM annually, at midterm permit review (every 2 1/2 years), and at permit renewal (every 5 years).

In addition to PCC's monitoring data submitted to OSM, the 1987 amended lease agreements between PCC and both tribes require PCC and the tribes to conduct an analysis of the long-term impacts of water withdrawal from the N-aquifer for the coal slurry pipeline. The findings of OSM's CHIA and EIS would not preclude or negate any results of the long-term

water study conducted pursuant to the lease amendments.

On the basis of analysis of both site-specific and cumulative impacts under Alternative 1 (approval with conditions of the life-of-mine mining plan, PAP, and Federal permit to mine coal), OSM concludes that:

- Major impacts would be expected to occur to vegetation diversity and wildlife habitat over the short term from the conversion of 9,046 acres of pinyon-juniper woodland and 4,485 acres of shrubland to grassland. Major socioeconomic impacts would occur to the (1) Hopi Tribe's fiscal status and ability to provide human services over the long-term; (2) the population, employment, and personal income contributed by the mine to the town of Kayenta; and (3) personal income generated by the mine to the Navajo Tribe and to residents of the proposed permit area.
- Impacts that have the potential to become major include those to (1) local residents subject to increases in fugitive dust during high windspeed days and those residents subject to relocation by PCC; (2) the grazingland (long term), residential, and cultural land uses of the proposed permit area; (3) undiscovered prehistoric and historic cultural resources; (4) employment, income, fiscal balance, and human services in certain affected jurisdictions; (5) social well-being of local residents using Navajo traditional grazing practices as their primary means of subsistence; (6) loss of revenues from not mining recoverable coal reserves or loss of coal during mining; and (7) unmitigated or unlocated sacred and ceremonial resources.
- Moderate impacts would be expected to occur to (1) air quality in and around the active mining areas; (2) raptors from the elimination of outcrop features and pinyon-juniper habitat; (3) the pinyon-juniper woodland vegetation community and its forestry use; (4) wildlife from the loss of vegetation cover and diversity and increased harassment from local travelers within the proposed permit area; (5) the short-term loss of grazingland during mining operations; (6) prehistoric and historic cultural resources, and sacred and ceremonial resources, the impacts of which have been successfully mitigated or that can have the potential impacts successfully mitigated; and (7) visual resources.

- Minor impacts would be expected to occur to (1) soils and vegetation from exposure to toxic and acid-forming material and to soil and vegetation productivity; (2) family garden plots within the proposed permit area; (3) air quality and visibility outside the proposed permit area; (4) topographic diversity and surface stability; (5) geology and mineral resources; (6) surface and ground water quantity and quality from mining and mining related pumping of the N-aquifer; (7) key wildlife habitat areas, aquatic wildlife, and certain threatened and endangered species; (8) the population base of the Hopi and Navajo Reservations and socioeconomic conditions of jurisdictions not directly affected by the mine; (9) the regional transportation network; and (10) recreational resources.

Under Alternative 2 (disapproval of the proposed life-of-mine mining plan and the PAP), the majority of impacts identified under Alternative 1 would not occur because the 13,787.4-acre area proposed for disturbance would not be mined. Negligible to minor impacts would occur from reclamation of the existing disturbed areas. In addition, the following impacts under Alternative 2 differ in timing and/or magnitude from those under Alternative 1:

- Major socioeconomic impacts on Kayenta would occur from early closure of the mine.
- Major fiscal and human service impacts on the Hopi Tribe would occur from the loss of mine-generated revenues.
- The potential for major impacts on wildlife would occur from not constructing ponds proposed under Alternative 1 and from reclaiming existing mine-related ponds.
- The potential for major impacts would occur on grazingland, in that the land proposed for mining and reclamation under Alternative 1 would not be disturbed; hence, the productivity of these lands would not be increased.
- The potential for major socioeconomic impacts would occur on the Navajo Tribe's fiscal and employment base, Tuba City, and Page from early closure of the mine.
- The potential for major impacts would occur from reclamation of existing mine-related roads, affecting future access to residences and grazingland.

Disapproval of the application would cause present mining to cease, equipment to be moved off, and back-filling and grading to commence. Once the equipment is removed, the recoverable reserve would need to be redefined. By deferring mining to a later date, the coal losses from mining and thin seams may be available additions to future production due to increased efficiency or new technology. However, reserves originally recoverable with equipment already onsite may no longer be large enough to justify moving the equipment back in and reexcavating the reclaimed areas if the permit application were to be approved at some later date. This would have the potential to become a major impact on recoverable reserves if a large part of these reserves could not be mined in the future.

The impact on the future mining of remaining coal reserves would be dependent upon future coal market economic conditions. Initial capital and start-up costs for future mining may or may not be prohibitive depending upon future coal demand and market price. The only definitive coal losses would likely be coal reserves left in place as fenders between reclaimed land and virgin coal. The size of these fenders would be dependent upon the mining method and plan employed by the future mine operator. The loss of coal reserves in these fenders would be of minor impact given the amount of total remaining minable reserves within the surrounding area of the mine.

Geochemistry and Toxic Material.--Under Alternative 2, overburden removal would be discontinued, and all mining activity would be turned to reclamation. No additional toxic materials would be exposed by mining. PCC has demonstrated that sufficient suitable material is available to cover toxic overburden and allow for successful reclamation. The impacts from acid- and toxic-forming material under Alternative 2 are considered to be minor.

Uranium.--The occurrence of uranium is not a concern under Alternative 2 because none has yet been discovered during mining. Discontinuation of mining would eliminate any potential of exposing uranium at the minesite.

EXTENDED MINING SCENARIO

Given the extended mining scenario outlined in Appendix D, an additional 9,300 acres of land would be disturbed as a result of mining an additional 270 million tons of coal resource.

Impacts to the local geology would include further alteration of the structure and topography of the overburden and probable further delay of exploration and/or mining of other possible mineral resources.

There are insufficient data available to determine whether any additional surface minable coal reserves would be scheduled to be left unmined under this scenario. The recovery of 85 million tons of coal reserves in the J-7, J-21, and J-19/20 areas that would be left unmined under Alternative 1 could occur if mining were to continue. This would involve reopening of the final pits which, in the process, could result in a loss of about 270,000 tons of coal. This would be a permanent but negligible impact, considering the total coal reserves within the permit area.

The mining limits outlined in the present application would allow PCC to get maximum recovery of the surface minable coal on the proposed permit area. OSM's review of cross sections in mining areas J-19, J-21, and N-6 found that unmined reserves exist under areas where the overburden is greater than 250 feet in thickness; however, these reserves are not in contiguous blocks large enough to support underground mining. Therefore, OSM concludes that the extended mining scenario would have a minor impact on underground minable coal.

Geochemistry and Toxic Material.--Additional disturbance and projected mining as outlined in Appendix D would necessitate additional overburden sampling in the new disturbance areas. The overburden handling and reclamation would probably proceed as proposed in the current application and, therefore, would result in minor short- and long-term impacts.

Uranium.--The impact from the exposure of uranium from continued mining would be negligible given the mineral levels of radioactive elements found in the proposed permit area to date.

C. HYDROLOGY

ALTERNATIVE 1: THE APPLICANT'S PROPOSAL

To perform an analysis of impacts of the alternative actions to surface- and ground-water resources, OSM conducted a "cumulative hydrologic impact assessment" (CHIA) of an area extending from Black Mesa to the Little Colorado River. (See chapter I.) The findings of the CHIA and the hydrology analysis in this EIS are based upon the available data at this time from both tribes and PCC, and surface- and ground-water monitoring performed in cooperation with the U.S. Geological Survey (USGS).

In addition to the monitoring data submitted by PCC to OSM, the 1987 amended lease agreements between PCC and both tribes require PCC and the tribes to conduct an analysis of the long-term impacts of

water withdrawal from the N-aquifer for the coal slurry pipeline. The findings of OSM's CHIA and EIS would not preclude or negate any results of the long-term water study conducted pursuant to the lease amendments.

The major focal points of the CHIA were on modeling the effects of the mine and community pumping on the N-aquifer system, on the effects of impoundments on streamflow and the alluvial aquifers, and impacts on the quality of water in the spoils and alluvium. Since the preparation of the CHIA, OSM has analyzed additional water quality data through September 1989 that support the conclusions of the CHIA.

SURFACE-WATER QUANTITY

General.--Impacts of surface mining on surface-water quantity in the area of the Black Mesa-Kayenta mine complex would occur from alterations of runoff-producing characteristics (including infiltration capacity and permeability of reclaimed spoil materials) and from the extensive use of impoundments to control runoff and sediment yield on the disturbed areas. These impacts are described below.

Proposed Hydraulic Structures

Diversions and Channels.--PCC has constructed five major diversions and has proposed to build another one in 1992. Four of the existing diversions would need remedial work to bring them into compliance with the applicable performance standards. This work would be done in the first 5 years of the permit term. In addition, PCC proposes the use of gradient terraces, downdrains, and reclamation channels to control runoff in the surface-stabilization plan. PCC has proposed 68 reclamation channels for draining the primary watersheds. The primary location of the gradient terraces, downdrains, and reclamation channels would be determined before rough grading is initiated. The final drainage configuration would be designed after rough grading is complete, as dictated by design procedures outlined in PCC's Reclamation Surface-Stabilization Design Handbook. The design procedures in this handbook were developed by PCC based on site-specific conditions at the Black Mesa-Kayenta minesite, in cooperation with and approved by OSM, and their implementation would ensure that the surface drainage system would be stable; therefore, impacts would be minor over the short and long term. PCC has proposed to construct a major diversion of Reed Valley Wash in 1992. PCC has agreed to meet OSM's design specifications and submit a revised final design plan to OSM for approval 1 year before construction.

Impoundments.--The primary purpose of the impoundments would be to reduce the environmental impacts associated with increased sediment loading of surface runoff on disturbed lands. The sediment ponds trap the sediment-laden water so that it does not cause adverse impacts downstream. Once the sediment settles from the water and EPA effluent criteria are met, the clean water is discharged from the sediment pond back into the stream channel. The primary impacts from the sediment ponds associated with the mining operation would be an improvement of water quality, slight water loss due to evaporation, increase in local baseflow and a decrease in peak runoff volume.

PCC proposed to construct (after 1985) 80 additional impounding structures, including 2 MSHA-regulated impoundments, 73 temporary sedimentation ponds, 2 permanent impoundments, and 3 temporary impoundments. (See table IV-1.) In addition, PCC is required to perform remedial work on existing impoundments and sedimentation ponds to bring them into compliance with the applicable performance standards. These structures would be upgraded during the first 5 years of the permit term; priority of the work would be based on the importance of the remedial work.

PCC proposes to remove 32 sedimentation pond structures that were constructed prior to the end of 1985. Twenty of the ponds have each been made unnecessary because of construction of other sedimentation ponds that control runoff from the same area, and 12 ponds control runoff from road areas. Roads by themselves are not considered disturbed areas under the Federal program [30 CFR 816.46(a)(2)(i)] and PCC is, therefore, not required to pass runoff from these roads through a siltation structure, so long as the roads are designed and constructed to the performance standards for roads [30 CFR 816.150]. Impacts from the removal of these ponds would be minor. These structures are scheduled for removal and reclamation over the first 3 years of the permit period.

The proposed impoundments are designed to retain the runoff produced by the 10-year, 24-hour precipitation event or more. Thus, the immediate impact of the impoundments would be to retain all runoff from the 10-year, 24-hour and smaller events and to attenuate flows resulting from larger events (reduce peak discharge rates and total discharge).

The effect of this water retention on surface flows at downstream locations would depend on the volume of water retained relative to the volume produced from the total drainage area above the impoundment site. These volumes, in turn, are proportional to the drainage areas tributary to the impoundment. The impact of reduced runoff would be reflected as a change in

Table IV-1.--Existing and proposed impoundments

Structure type	Existing (through 1985)	Existing; need remedial work	To be built (1986-2011)	Permanent impoundments for postmining land use
MSHA-regulated structures	9	1	¹ 2	9
Sedimentation ponds (including redundant structures)	135	103	73	² 20
Permanent impoundments	3	0	³ 2	5
Temporary impoundments	4	2	3	
Pre-SMCRA impoundments	⁴ 16	⁵ 1	0	16
Premining impoundments	⁶ 8	-	-	⁶ 8
Total	175	107	80	58

¹The Wild Ram Valley Dam was built in 1986, but for the purpose of the EIS analysis, it is considered to be a proposed structure.

²20 small sediment ponds will be upgraded and left as permanent impoundments.

³J-19RA and J-19RB to be built solely for postmining land uses.

⁴Impoundments constructed prior to enactment of SMCRA to facilitate mining and reclamation.

⁵Pond J3-G would be converted to a sedimentation pond and left as a permanent impoundment.

⁶Impoundments shown on premining and postmining water supply drawings map Nos. 85322 and 85324.

downstream peak discharges. This impact would be mitigated by discharging of water from the impoundments after it meets effluent criteria specified in the EPA NPDES permit. In addition, PCC has been required to develop a plan for maintaining periodic discharge from the impoundments. (See Appendix B.)

The average concentration of sediment (suspended solids) occurring naturally in the runoff upstream from the mine-related disturbance on Coal Mine Wash is 56,770 mg/L, the maximum is 400,300 mg/L. For Moenkopi Wash, the average is 34,600 mg/L, the maximum is 176,000 mg/L. For Dinnebito Wash, the average is 54,000 mg/L and the maximum is 240,000 mg/L. For Yellow Water Canyon, the average is 83,000 mg/L and the maximum is 880,000 mg/L. For Yazzie Wash, the average is 29,000 mg/L and the maximum is 59,000 mg/L. Water discharging from the sediment ponds after treatment would have a concentration of 70 mg/L. Therefore, there would be a large improvement of water quality as a result of the sediment ponds.

In cases where channels have cut into the Wepo Formation, the stored impoundment water may seep

back into the adjacent alluvium and thereby bypass the dam embankment to the downchannel alluvium. Depending on the depth to which the embankment foundations are cut into the alluvium, some of the stored water would also seep beneath the embankments to the downchannel alluvium. The effect of such seepage would be to "meter" stored runoff past the impoundments at a rate such that most of it could infiltrate into the downstream alluvium and, thus, augment alluvial water levels and local baseflow in the periods between storms. Under PCC's existing NPDES permit, impoundment dewatering by pumping would represent an increased "metering rate." The "metered" water would help maintain alluvial water levels and would result in somewhat larger surface base flows. In effect, the water initially retained in the impoundments would be regained in subsequent downstream flows at more usable rates and would be of better quality. OSM concludes that the short- and long-term impact on surface water flow from the impoundments would be minor.

Moenkopi Wash Basin.--Potential impacts of impoundments on surface-water quantity were assessed on the two principal washes draining the proposed permit area (Moenkopi Wash and Dinnebito Wash) at

a site on each wash immediately downstream from the downstream permit boundaries and at the Moenkopi gauging station on Moenkopi Wash. On Moenkopi Wash, these sites define upper Moenkopi Wash basin and Moenkopi Wash basin at Moenkopi, respectively. On Dinnebito Wash, the downstream boundary site defines upper Dinnebito Wash basin. (See "Drainage Areas" in chapter III, section C.)

To analyze mining impacts on surface-water quantity (OSM CHIA, 1989) for the proposed permit area boundary site, OSM used indirect approaches wherein mean direct runoff estimates and downgradient changes in alluvial water levels were considered valid indicators of the effects of the impoundments on stream discharge. Alluvial aquifer water levels reflect both the direct effects from impoundment interception and storage of runoff and the indirect effects from mining impacts to the Wepo aquifer, which is tributary to the alluvium in the proposed permit area. These effects have been documented within the proposed permit area as water-level rises in alluvial wells during and after streamflow events. This infiltration or stream losses were reflected as reduced flow rates as the flood event progressed downstream (PCC, PAP, chapter 15). (The relationship of alluvial aquifers to the surface-water system is discussed in chapter III, section C.)

The water-data record from USGS gauging station 09401260 allowed a more traditional analysis for impacts at the Moenkopi Wash at the Moenkopi site. The pre-impoundment and post-impoundment parts of the record were compared on the basis of flow duration and length of zero flow periods. Mining was assumed to be one possible cause of any measurable changes or trends that might be identified.

Upper Moenkopi Wash Basin.--The estimated annual water yield for upper Moenkopi Wash basin is 13,600 acre-feet (table III-4). The estimated water yield from the maximum net impoundment-controlled areas is 2,240 acre-feet. The maximum available storage volume in these impoundments is 5,900 acre-feet. The estimated water yield (2,200 acre-feet) represents 17 percent of the estimated annual yield from upper Moenkopi Wash basin. This maximum storage would exist for only 1 year (in 1996), as the impoundment-controlled area would decline in the following year and thereafter because impoundment construction would be completed whereas reclamation of temporary impoundments would continue. Through 1985, the water yield from the impoundment-controlled area was estimated to be 1,660 acre-feet, and the maximum volume that could be retained by impoundments was 4,000 acre-feet. The retained volume (1,660 acre-feet) represents 12 percent of the estimated annual yield from upper Moenkopi Wash basin, and about 74 percent of the maximum volume that would be retained in

the year of maximum impoundment control in 1996 (2,240 acre-feet). Thus, it is assumed that any effects on alluvial water levels caused by water retention in impoundments would be apparent in the alluvial water-level data prior to 1985.

In Coal Mine Wash, the water level in the downstream alluvial well rose a net of 2.01 feet over the period from 1980 to 1985, with the largest amount of the rise occurring coincidental to the most active period of impoundment construction (first 3 years). During the same period, the water level in the upstream well rose only 0.68 foot overall, with the level declining during the first 2 years. The fact that the level was declining at the upstream well during the period of greatest increase (first 2 years) in impoundment-controlled area suggests that the subsequent 1.3-foot rise in Coal Mine Wash alluvial water levels was an effect of the impoundments. However, this may be overshadowed by changes due to alluvium variability and precipitation variations within the watershed.

Estimates of future impacts of mining on alluvial water levels were based on the relationship of alluvial water level changes to net impoundment-controlled area observed during the period from 1980 to 1985. Net impoundment-controlled area would reach a maximum in 1996. In Coal Mine Wash, the increase in impoundment-controlled area, 1986-96, is projected to about double (from 5.6 square miles to 12.0 square miles) that constructed during the 1980-85 period. Therefore, assuming a linear relationship between controlled-area increase and water-level change, the 1.3-foot water-level rise observed during the 1980-85 period can be expected to double through 1996, increasing the alluvial water levels 2.6 feet above pre-1980 levels. This is considered to be a beneficial impact.

For Moenkopi Wash above Coal Mine Wash, water levels in the upstream and downstream alluvial wells rose approximately the same amount over the 1980-85 period, 0.71 foot and 0.63 foot, respectively. Thus, based upon available data, activity within the proposed permit area through 1985 appears to have had no negative effect on alluvial water levels in Moenkopi Wash.

On the basis of this analysis, OSM concludes that mining activity within the proposed permit area, including construction of impoundments, has not diminished alluvial water levels and appears to have caused an increase of alluvial water levels in Coal Mine Wash. This, in turn, has possibly resulted in some augmentation of surface discharge in Coal Mine Wash.

On this basis, no changes in downstream alluvial water levels in Moenkopi Wash above Coal Mine Wash are anticipated because no changes were observed from

1980 to 1985, and because the increase in controlled area through 1996 is projected to be only about one-third the increase added prior to 1985. For Moenkopi Wash below Coal Mine Wash, a slight increase in alluvial water levels is anticipated through 1996, due to the increase in Coal Mine Wash water levels and due to NPDES discharges from impoundments. After mining and reclamation are completed, all except the permanent impoundments would be removed, and their sites would be reclaimed. OSM concludes that the short- and long-term impact on alluvial water levels from the proposed mining would be both beneficial and minor.

Permanent Impoundments.--Sixteen impoundments built prior to the implementation of SMCRA (referred to by PCC as permanent internal impoundments, or PII's, in the PAP and herein) would be left as postmining land use features. One of these (J3-G) would be converted for current mining-related use; however, the remaining 15 would not be used in support of ongoing mining activities. In addition, three permanent impoundments previously approved under SMCRA would be left as permanent water supplies. The PII's are located in the N-1, N-8, J-1, and J-3 coal resource areas. In addition, 21 existing impoundments, proposed to be converted to permanent impoundments, are located throughout the mining disturbance. The proposed permanent impoundments would have the characteristics defined in table IV-2. (See plate 3.) Many of these structures existed prior to 1986; therefore, their impacts were considered in OSM's CHIA. PCC has committed to make appropriate modifications to the temporary impoundments to meet the permanent impoundment performance standards at 30 CFR 816.49.

The nine MSHA impoundments and other proposed permanent impoundments located in upper Moenkopi Wash basin would not be reclaimed after reclamation is completed and water yield from 55.5 square miles of upper Moenkopi Wash basin (1,770 acre-feet) would remain under impoundment control on a permanent basis to provide water for the designated postmining land uses. Dinnebito Wash has 3.2 square miles of watershed controlled by proposed permanent impoundments (126 acre-feet). It was further assumed that the Alternative 1 plan for dewatering of permanent impoundments to maintain the 10-year, 24-hour storage capacity would be discontinued after reclamation is completed. The total capacity of these permanent impoundments would be about 1,000 acre-feet. The permanent impoundments would control about 13 percent of the runoff from upper Moenkopi Wash basin after mining. This level of retention is close to the 12 percent of runoff retained by impoundments through 1985.

As there were no observable decreases in alluvial water levels prior to 1985, OSM concludes that the short- and long-term impacts from the proposed permanent impoundments would be minor. OSM has included a permit condition to require PCC to submit and implement a plan for periodic release of water from selected impoundments. PCC would also be required to monitor the downstream effects of releases. Based upon these results, adjustments would be made in the postmining land use plan (that is, number of permanent impoundments) if necessary. (See Appendix B.)

Moenkopi Wash Basin at Moenkopi, Arizona.--The drainage area above this site is 1,660 square miles, and the proposed permit area is located approximately 56 channel miles upstream from the site. In terms of runoff response, this drainage area must be considered a "large" basin. Table III-4 indicates that, at the maximum, only 13 percent of the annual direct runoff produced by this drainage area would be affected by the impoundments planned for the proposed permit area. The permanent impoundments would control a maximum of 10 percent of the runoff. The impoundments would most affect the small runoff events: those produced by 10-year, 24-hour and all smaller precipitation events. These events would be temporarily retained by the impoundments; larger events would be only partly retained. But even without impoundments, the small events would partially or totally be absorbed by the alluvium before reaching the Moenkopi site and would thus be unavailable as usable surface flow. (See discussion of drainage basin size in chapter III, section C.) Therefore, it is unlikely that the impoundments would have any major effect on runoff-generated surface flows at this site.

The USGS water-data record available for the site supports this conclusion. The record was divided into pre-impoundment and impoundment periods, 1974-78 and 1979-83, respectively, to evaluate hydrologic conditions before and after the start of extensive, continuous mining activity and impoundment construction at the complex in 1979. Mean annual discharge, flow duration, length of zero flow periods, and temporal distribution of zero flow periods were used to evaluate impacts at this site (OSM CHIA, 1989).

Examination of the available discharge record suggests that the discharge regime (surface-water quantity) at the Moenkopi Wash at Moenkopi site is independent of the activities occurring on the proposed permit area. No statistically significant differences between the periods immediately before and after the start of impoundment construction in 1979 were found in the records of mean annual discharge, flow duration, length of zero flow periods, or temporal distribution of zero flow periods (section 3.1.1.6, CHIA). In addition, the relative sizes of the maximum projected impound-

Table IV-2.--Characteristics of proposed permanent impoundments

Structure	Storage capacity (acre-ft)	Drainage area (acres)
J2-A	178	2,655
J7-DAM	669	5,366
J16-A	333	2,676
J16-L	484	6,355
N14-D	559	1,830
N14-F	61	376
N14-G	185	1,479
N14-H	227	1,650
J19-RA	-	779
J19-RB	-	813
J7-JR	185	3,822
J3-E	18.8	250
J3-D	19.8	316
J3-G	² 308.9	241
J16-G	19.7	270
N5-A	13.6	546
N7-D(ES)	751	775
N7-E(ES)	18.2	238
N10-A1	12.2	700
N10-D	14.7	286
N12-C	31.6	848
N11-G	55	879
N11-A	38	494
N10-G	30	466
N6-K	45	442
J21-I	19.1	¹ 778
J21-C	19.7	¹ 788
J21-A	19.6	¹ 542
J7-R	30	325
TPF-D	20.6	330
TPF-A	18.6	219
Total	4,385.1	37,534

¹Located in Dinnebito Wash drainage.²J3-G is a pre-SMCRA permanent impoundment that would be upgraded for use as a sedimentation pond and would remain as a permanent impoundment.

ment-controlled areas at the proposed permit area (70 square miles) and the inherent discontinuous nature of runoff response of large basins such as this, suggest that most water quantity impacts originating on the proposed permit area would be largely dissipated before reaching the Moenkopi site. (See the "Hydrology" section of this EIS, chapter III, "Effects of Drainage Basin Size on Surface Flows.")

The expected evaporation from reservoirs in the Black Mesa area is about 50 inches of water per year (Kohler and others, 1959). The proposed permanent ponds have a combined surface area at the emergency spillway elevation of about 120 acres. The water-surface area exposed to evaporation would be less than the 120 acres because the ponds would not be full at all times, and not all ponds would fill each year. The maximum possible evaporation would be about 1,000 acre-feet. A more precise estimate cannot be made because of the pond filling uncertainties, the variable seepage losses to the alluvial ground water, and the fact that many of the ponds would not contain water during the full year. The estimated annual evaporation is expected to be less than 250 acre-feet, which is about 3 percent of the flow recorded at Moenkopi.

OSM concludes that both short- and long-term impacts of mining at the proposed permit area on the surface-water quantity at Moenkopi would be negligible.

Dinnebito Wash Basin.--Disturbance within Dinnebito Wash basin is not scheduled to begin until 1989, so there is no mining-affected period upon which to base impact projections, as was done for Moenkopi Wash basin. The physiography of Dinnebito Wash basin, however, is similar to that of Moenkopi Wash basin, with the Wepo Formation tributary to the alluvium in the ephemeral Dinnebito Wash. Similar types of impacts to the surface-water resource could be expected to occur. Annual water yields would probably be of similar magnitudes, and downgradient alluvial water levels would also reflect any major changes due to impoundment construction. Impacts to the surface-water quantity of Dinnebito Wash basin were estimated on the basis of its projected impoundment-controlled area, by use of the same trends and projections that were used in Moenkopi Wash basin.

Upper Dinnebito Wash Basin.--Impoundment construction in Dinnebito Wash would begin in 1989 and would continue through 2000. Reclamation of the structures would begin in 2011. The maximum net impoundment-controlled area planned for Dinnebito Wash is 4.55 square miles and is proposed to be in place from the year 2000 through 2010, when impoundment reclamation would begin (OSM CHIA, 1989). The maximum impoundment-controlled area represents

about 9 percent of the 53-square-mile upper Dinnebito Wash basin. This compares to a maximum impoundment-controlled area of 70 square miles, or about 27 percent, of upper Moenkopi Wash basin.

On a percentage basis, the maximum proposed controlled area within upper Dinnebito Wash basin represents about one-third of that proposed within upper Moenkopi Wash basin. Therefore, impacts within Dinnebito Wash basin should be commensurate with the impacts expected for the upper Moenkopi Wash basin. In addition, mining activity within Dinnebito Wash basin is scheduled to be a decade shorter in duration, which should tend to minimize impacts as compared to those in Moenkopi Wash basin.

As in Moenkopi Wash basin, the overriding factor affecting impacts downstream from the proposed permit area is the size of the disturbed or controlled area relative to the total basin size, and the associated effect on water yield to offsite streamflow. About 90 percent of upper Dinnebito Wash basin would remain unaffected by mining. In the worst case, all the water produced on the controlled area would be initially retained in the impoundments. However, through increased alluvial water levels due to subsequent seepage of this water past dam embankments into the alluvium, and due to impoundment dewatering, much of the retained volume would be regained. Approximately 3.2 square miles of upper Dinnebito Wash basin would remain under impoundment control on a permanent basis to provide water for the designated postmining land uses (three of the impoundments are listed in table IV-2). Thus, less than 6 percent of the water yield of upper Dinnebito Wash basin would be retained.

OSM would require continuation of off-lease monitoring in both Moenkopi and Dinnebito Washes. (See Appendix B). OSM concludes that the short- and long-term impact on surface-water quantity on this site from mining under Alternative 1 would be negligible.

Alternative Water Sources.--PCC proposes to leave a total of 99 water sources after mining to support the postmining land use of livestock grazing and wildlife habitat. The source types break down as follows:

Source Type	Number
Water Impoundments (including pre-SMCRA ponds)	58
Springs	24
Wells	17
Total	99

PCC performed a field inventory to locate pre-1986 water sources within and adjacent to the proposed

permit area. This field inventory was done during the summer of 1988. The basis for the inventory was previously published inventories of water sources. PCC found that five of the pre-1986 wells appeared to have been abandoned and that three others identified by the literature could not be found within the proposed permit area. Eleven functional wells were found. Based on the field inventory, the number of water sources that existed prior to 1986 are:

Source Type	Number
Water Supply Ponds (including 16 pre-SMCRA ponds and 8 pre-mining ponds)	24
Springs	25
Wells	<u>11</u>
Total	60

Mining would destroy two wells and one spring. PCC proposes to provide 34 additional water supply ponds and 6 wells. Pond and well water sources destroyed by mining would have a replacement source within 1 mile of the original location. The one spring (site 97, located in the northwest corner of N-14 area) that would be destroyed cannot be replaced with a spring. However, there would be four permanent impoundments (N14-D, N14-F, N14-G, and N14-H) and an existing spring (site 111) within about 7,000 feet of its location.

OSM acknowledges that local residents of the lease area were using existing water sources for domestic purposes. Data available on the water-source chemistry indicated it was of marginal quality and typically would not meet the EPA secondary drinking water standards. PCC has replaced these water supplies with water from the N-aquifer at public water stands. These N-aquifer water sources would be turned over to the Navajo Tribe at the conclusion of mining. This alternate domestic supply meets the current drinking water standards. Livestock and wildlife supplies would be replaced with permanent impoundments. The short- and long-term impact on water sources would be minor.

High levels of selenium have been detected in the overburden and interburden at the Black Mesa/Kayenta mine. Selenium, at certain concentrations, can be toxic to wildlife, livestock, and humans, and so there is some concern regarding the potential for selenium to be present in the impoundments proposed for wildlife and livestock use. PCC has monitored for selenium in impoundment water at the mine. The detection levels ranged from 0.001 to 0.010 mg/L through 1985. Since late 1985, detection limits have been lowered to 0.001 mg/L to coincide with the livestock water-quality criteria. To date, selenium has not been detected in pond water by using these detection limits. Addition-

ally, OSM is requiring PCC to set detection limits for all trace metals within established guidelines. (See Appendix B.) OSM is also requiring PCC to include selenium and boron in its spoil sampling program, which would identify toxic levels in materials proposed as topsoil substitutes. (See Appendix B.) PCC's commitment to place at least 4 feet of nontoxic material at the spoil surface for revegetative purposes should prevent surface runoff from dissolving large quantities of selenium and transporting it to the permanent impoundments for ingestion by wildlife and livestock.

OSM concludes that the short- and long-term impact on wildlife and livestock from potentially high levels of selenium in the proposed permanent impoundments would be minor.

Mining Effects on Water Rights and Reservation Water Usage.--Water rights for the Navajo and Hopi reservations are currently before the Arizona court system for adjudication. OSM has focused on the effects of mining on water available for use on the two reservations. As discussed below, these impacts are found to be minor. OSM acknowledges that both tribes, as well as other parties, have claims to use of the existing water resources. It is assumed that the issue of reservation water rights would be resolved by the courts before final bond release on the proposed permanent impoundments. OSM's condition to the permit requires PCC to implement a plan to release water and monitor streamflow downstream from selected impoundments. This monitoring effort would create a basis for operating the permanent impoundments. If the outcome of water claims requires modification to the permanent impoundments, PCC would be required to revise its reclamation plan accordingly.

The permanent impoundments that would be left for the proposed postmining land use of grazing and wildlife are potential legitimate water uses. The permanent impoundments are designed to replace preexisting water sources and to further support the more intensive grazing proposed after mining. If court decisions or the monitoring results indicate that the impoundments need to be operated differently than proposed, or reduced in number, a permit revision would be required.

As documented in the CHIA and in the "Ground water" section of this EIS, the effects due to impoundment construction and pumping from aquifers would have a minor impact on other water uses outside the proposed permit area, such as at Moenkopi. Local wells within the proposed permit area that are destroyed by mining have been and would continue to be replaced by PCC by drilling to deeper aquifers, such as the N-aquifer.

OSM concludes that the impact of implementing Alternative 1 would be minor on other identified water and land uses on both reservations.

SURFACE-WATER QUALITY

General.--Potential changes, resulting from the proposed mining, in the chemical quality of surface water discharged from the proposed permit area would primarily occur through exposure of runoff or infiltrated water to newly exposed mineral surfaces, and the amount of precipitation and spoil water that runs off or discharges to streams. Because surface runoff would normally be in contact with new mineral surfaces for such a brief time, impacts would be minor. However, water that has infiltrated into reclaimed spoils could greatly increase its mineral content, although this has not been observed at the proposed permit area. In addition, increased permeability of the spoil rubble would allow a larger proportion of the precipitation to come in contact with freshly exposed mineral surfaces within the spoils. The increased permeability may also mean that spoils would resaturate at a faster rate than the normal recharge rates through undisturbed overburden.

Alluvial water quality was used as an index of the surface-water quality in preference to measured surface-water-quality data because the surface flows tends to be sporadic and intermittent. Also, TDS concentrations in surface flows are known to vary widely with water flow rate and time of year, thus requiring longer records to achieve a given level of accuracy. On Black Mesa, surface-water discharges tend to be highly variable both areally and temporally over the proposed permit area, because they result primarily from high-intensity, localized cellular thunderstorms. Constituent concentrations in alluvial waters tend to change much more slowly, however, allowing reliable definition of the water-quality regime. In addition, alluvial water on Black Mesa is derived in part from surface flows, as discussed in chapter III, and from other aquifers intersected by the channel. Thus, alluvial water has value as an index of both surface-water and baseflow quality. For these reasons, this assessment focuses on the quality of the alluvial waters, aquifers, and surface flows that recharge the stream valley alluvium. The alluvial aquifer, in turn, contributes to the baseflow at Moenkopi.

In order to assess mine-related changes in water quality, the water-quality data set was divided into two subsets--for the alluvial aquifer, those areas considered to be "affected" or "unaffected" by the mining to date. "Affected" samples are those from wells completed in reclaimed spoils, in undisturbed Wepo downgradient from mining-disturbed areas, or in alluvium adjacent to, or downgradient from, mining-disturbed areas that

may have been affected by mining. "Unaffected" samples are those from wells located upgradient from any mining disturbances, or those that are effectively isolated from mining disturbances by distance, or by intervening stream channels or ground-water divides.

OSM has included a permit condition requiring modifications to PCC's surface water quality monitoring program to address concerns identified in the permitting process. These modifications are defined in Appendix B.

Proposed Permit Area.--Most surface flows occurring in streams draining the proposed permit area are the direct result of precipitation or snowmelt events. A few reaches carry small intermittent flows that may derive from Wepo discharge. However, it is more likely for surface flows in the major channels crossing the permit area to be diminished than to be augmented by ground water. Contribution of minerals directly from the Wepo Formation to surface/alluvial flows is minimal. This was confirmed by performing hypothetical mixing calculations based on existing water-quality data (OSM CHIA, 1989).

The available water-quality data were subjected to several analytical and statistical procedures including frequency distribution analysis, trend surface analysis, various two-sample tests and linear regression analysis (CHIA, section 3.1.3.1). Important findings include (1) the absence of major correlations of constituent concentrations over time, indicating that major water-quality changes have not occurred over the period of record through 1985, and (2) a large natural variation in TDS concentrations across the proposed permit area and regionally.

Differences between "unaffected" and "affected" alluvial water quality are small, as indicated by table IV-3. A second-order trend surface water analysis of TDS concentrations in samples known to be unaffected by mining shows that there is a large variation in TDS concentrations across the proposed permit area within all alluvial waters. This suggests that there are factors in the natural environment unrelated to mining which affect TDS concentrations on Black Mesa.

To further assess the potential for changes in TDS concentrations, the equilibrium chemistry of various mineral species was examined to determine their possible control on alluvial water quality, especially species associated with the oxidation of pyrite (FeS) that affect the ultimate concentration of sulfate (SO₄). Where low sodic soils and overburden are present, such as those derived from the Wepo Formation, consideration of gypsum equilibria is important, based on experience with disturbance of soils and overburden associated with coal mining throughout the United



United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

AZ0001

October 4, 2001

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. Brian Dunfee, Manger
Environmental Engineering
Peabody Group
P.O. Box 650
Navajo Route 41
Kayenta, Arizona 86033

Dear Mr. Dunfee:

Enclosed is the Office of Surface Mining's (OSM's) report on its review and analysis of Peabody Western Coal Company's (PWCC's) 1999 annual hydrological data report and the U.S. Geological Survey's Open-File Report on the status of ground-water and surface-water quantity, and water chemistry of the Black Mesa area in northern Arizona for 1999. This report was prepared to comply with the March 7, 1991, settlement agreement (entitled, "Agreement Concerning Review of Certain Data") reached with the PWCC and other parties in PWCC's appeal of Special Condition 11 of the AZ-0001C permit for the Kayenta Mine. This agreement requires OSM to review PWCC's and the U.S. Geological Survey's N-aquifer monitoring data, to compare the results against the material damage criteria set out in the Cumulative Hydrologic Impact Assessment (CHIA), and to report the results to PWCC, the Hopi Tribe, and the Navajo Nation.

On the basis of information contained in the PWCC hydrological data reports and the U.S. Geological Survey Black Mesa monitoring reports, OSM concludes that material damage to the hydrologic balance of the N aquifer outside PWCC's Black Mesa/Kayenta permit area, caused by mining, has not occurred.

If you have any questions please call me at (303) 844-1400, extension 1491.

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Sincerely,

A handwritten signature in black ink, appearing to read 'Richard Holbrook', written in a cursive style.

Richard Holbrook, Manager
Southwest Branch
Program Support Division

Enclosure

cc: AFO
BLM-Phoenix
BIA-Navajo Regional Office
BIA-Western Regional Office
Forest Lake Chapter House
Navajo Minerals Department
Hopi Office of Realty Services
Hopi Office of Mining and Mineral Resources
Office of the Solicitor-Rocky Mountain Region
OSM-HDQ-DRS

**THE OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT'S**

**REPORT ON ITS REVIEW AND ANALYSIS OF PEABODY WESTERN COAL
COMPANY'S**

**1999
"ANNUAL HYDROLOGICAL DATA REPORT"**

AND THE U.S. GEOLOGICAL SURVEY'S

**"GROUND-WATER, SURFACE-WATER, AND WATER-CHEMISTRY DATA, BLACK
MESA AREA, NORTHEASTERN ARIZONA -- 1999"**

**WESTERN REGIONAL COORDINATING CENTER
October, 2001**

**THE OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT'S
REPORT ON ITS REVIEW AND ANALYSIS OF
PEABODY WESTERN COAL COMPANY'S 1999 "ANNUAL HYDROLOGICAL DATA
REPORT"
AND THE U.S. GEOLOGICAL SURVEY'S "GROUND-WATER, SURFACE-WATER,
AND WATER-CHEMISTRY DATA, BLACK MESA AREA, NORTHEASTERN
ARIZONA -- 1999"**

I. INTRODUCTION

This report contains the results of the Office of Surface Mining Reclamation and Enforcement's (OSM's) review and analysis of Peabody Western Coal Company's (PWCC's) 1999 "Annual Hydrological Data Report" (hereinafter, the "PWCC-HDR") and the U.S. Geological Survey (USGS) report "Ground-water, Surface-Water, and Water-Chemistry Data, Black Mesa Area, Northeastern Arizona-1999", Thomas and Truini; 2000, (hereinafter, the "USGS 99 Report"). This USGS report describes monitoring the USGS completed up to and through the year 1999. The PWCC-HDR describes monitoring PWCC completed during calendar year 1999 and includes summary data from previous years.

In March of 1991, OSM entered into a settlement, called an "Agreement Concerning Review of Certain Data" (hereinafter, the "Agreement"), with the Hopi Tribe. As part of this settlement, OSM has agreed to review (1) hydrologic monitoring data on the N aquifer that PWCC had collected, pursuant to permit AZ-0001C (and subsequent AZ-0001D permit), and (2) water-quality and -quantity data collected as well as conclusions reached by the USGS in their ongoing investigations and published reports. The USGS established a monitoring program of the water resources on Black Mesa in 1971 in cooperation with the Arizona Department of Water Resources (ADWR), and were joined by the Bureau of Indian Affairs (BIA) in 1983. Since 1983, the Navajo Tribal Authority (NTUA); the Hopi Tribe; PWCC; and the Western Navajo Agency, Chinle Agency, and Hopi Agency of the BIA have assisted in collection of the hydrologic data.

Based on this twofold review, OSM is to determine whether impacts resulting from mining on PWCC's Black Mesa leasehold have occurred to the N aquifer. Under the Agreement, after it had received both PWCC's and the USGS's data reports, OSM was to review and analyze the data these reports contained, relating them to the material damage criteria for the N aquifer found in the "Cumulative Hydrologic Impact Assessment of the Peabody Coal Company Black Mesa/Kayenta Mine" (Office of Surface Mining, 1989; hereinafter the "CHIA"). The most recent OSM analysis of the USGS and PWCC data was completed in July of 2000.

The analysis that follows is limited to OSM's evaluation of the observed hydrologic impacts of PWCC's pumping of its field of eight N aquifer production wells (identified as well Nos. 2 through 9). OSM compared data regarding the condition of the aquifer contained in the PWCC-HDR and the USGS reports, with baseline conditions the CHIA had established for the N aquifer. This report will not repeat information contained in the CHIA, except for comparison of information provided in the two data reports. For full discussions of the definition of baseline conditions, the identification of hydrologic concerns, the development of material damage criteria, and the analysis of cumulative impacts for the N aquifer the reader is directed to the CHIA (OSM, 1989, sections 3.2, 4.2, 5.2.2, and 6.2.2 respectively).

In accordance with 30 CFR 816.41, two of the performance standards a coal-mine operator must meet from a hydrologic standpoint are: (1) prevent material damage to the hydrologic balance outside the permit area, and (2) minimize disturbance of the hydrologic balance within the permit and adjacent areas. The CHIA sets four hydrologic concerns that OSM identified for the N aquifer, as well as the material damage criteria it used to assess predicted impacts to the N aquifer as a result of coal mining and related activities on PWCC's Black Mesa leasehold. The four hydrologic concerns are (1) the structural stability of the N aquifer owing to reduction of the potentiometric head; (2) degradation of N aquifer water quality owing to increased migration rate of water from the D aquifer; (3) reduction of N aquifer spring discharge rate owing to alteration of the potentiometric surface; and (4) reduction of alluvial flow rates owing to the reduction of N aquifer discharge to alluvium (OSM, 1989, section 5.2.2.1).

II. GEOLOGIC SETTING AND WELL COMPLETIONS

The Black Mesa leasehold is located in northeastern Arizona (Figure A-1). The Black Mesa is a prominent topographic feature bounded by 2,000-foot-high cliffs that are dissected by steep-sided washes. Figure A-2 is a generalized stratigraphic column showing rock formations and major aquifer zones of the Black Mesa area.

The N aquifer in the Black Mesa area consists of the Wingate Sandstone, the Kayenta Formation, and the Navajo Sandstone with the Wingate and Navajo Sandstones being the principal water-bearing units. The Carmel Formation overlies the N aquifer. The D aquifer overlies the Carmel Formation and consists of the Entrada Sandstone, the Morrison Formation and the Dakota Sandstone. The Carmel Formation, a shaly siltstone and massive mudstone, confines the N aquifer and generally is not considered a water-bearing unit or to be part of the D aquifer. However, the Carmel Formation may produce water from limited permeable zones.

Both the D and N aquifers are confined in the vicinity of the Black Mesa mine and in much of the Black Mesa area. A confined aquifer is bounded above and below by impermeable beds and its potentiometric head is measured as the level to which

water rises above the top of the aquifer in a well penetrating and completed in the aquifer. Whereas, an unconfined aquifer is not overlain by a confining bed and its potentiometric head is the water table level.

AZ-0001D is the current permit issued by OSM to PWCC to mine part of its Black Mesa leasehold at the Kayenta Mine (Figure A-1). The permit application package gives detailed geologic and hydrologic information on the leasehold, including detailed lithologic information and the aquifer properties for each of PWCC's eight N aquifer production wells (Peabody Western Coal Company, 1990, Chapter 15). The permit application package also contains construction and completion information and lithologic logs for each of the N aquifer wells (Peabody Western Coal Company, 1990, Chapter 15, Attachments 19 and 20).

All PWCC N aquifer production wells penetrate the geologic formations of the N aquifer (Peabody Western Coal Company, 1990, chapter 15). However, each of the wells are completed in different water-bearing zones of the N aquifer and, in some cases, in the D aquifer. Table B-1 (Appendix B) contains a tabulation of the length of completed well intervals in geologic formations. All wells, except well No. 6, are completed in part or all of the Carmel Formation. Well No. 2 may be prone to leakage from the overlying D aquifer. Moreover, the annular space around the casing of well No. 2 is not grout-sealed above the Carmel Formation in the overlying Entrada and Morrison Formations of the D aquifer. Therefore, D aquifer water may migrate along this annular space and affect the chemistry of stagnant water in the well bore. Well No. 8 is completed in the Carmel Formation and the Navajo Sandstone. Unlike the other seven wells, well No. 8 was not drilled past the Navajo Sandstone into the underlying Kayenta Formation and the Wingate Sandstone. As a result water from well No. 8 is of a different quality and type than water from the other wells.

N aquifer production well Nos. 4, 5, and 7 are also completed in the D aquifer. In response to OSM questions asking for clarification of its well-completion information, PWCC stated that its well No. 8 is also completed in the D aquifer (Brian Dunfee, Peabody Western Coal Company, written communication, August 10, 1992).

PWCC is restricted in its well-monitoring activities to monitoring wells in the permit and adjacent areas of the Black Mesa and Kayenta mines. Specifically, it monitors well Nos. 2, 3P, 4, 5, 6P, 7, 8, and 9. Well Nos. 3P and 6P are abandoned pumping wells that have been converted to N-aquifer observation wells and used instead of well Nos. 3 and 6 since 1995 and 1985 respectively. The permit package describes PWCC's monitoring program in detail (Peabody Western Coal Company, 1990, chapter 16). Figure A-3 shows the locations of N-aquifer production wells. Every calendar quarter, OSM requires PWCC to measure pH, specific conductivity, total dissolved solids (TDS), salinity, and temperature at its eight N-aquifer production wells. Once a year, OSM requires PWCC to collect and analyze a water-quality sample from each well for a larger suite of chemical parameters. The permit

package refers to this larger suite as the "modified full suite" of chemical parameters.

PWCC's current standard procedure is to monitor water levels continuously using air-line bubbler (ABS) systems, and then to report continuous water-level data as a daily value. The ABS systems were installed in the wells from 1993 to 1996 and replaced in-well pressure transducers. Continuous water levels are measured whether a well is pumped or not. From the continuous water-level record, PWCC estimates the average annual N-aquifer water-level depth in each well while not pumping (Table D-1). During 1992 PWCC replaced the pumps in well Nos. 4, 6, 8, and 9.

The USGS monitors a network of ground-water, surface-water, and water-quality stations for the purpose of evaluating the effects of mine-related and other withdrawals from the N-aquifer system. The USGS obtained ground-water levels from 31 municipal and stock wells for its 1999 Report (Figure A-4). Withdrawal volumes from municipal wells includes estimated and metered pumpage from 1965-1985; and metered pumpage by several entities including the USGS from 1986-1999. The USGS also continuously monitors water levels in the six nonpumping observation wells (identified as wells BM 1 through 6) it operates. The USGS collected water samples from 12 wells at selected locations in 1999, including two of PWCC's N-aquifer production wells (Peabody 2 (NAV2) and Peabody 4 (NAV4)).

III. ANALYSIS OF PWCC-HDR AND USGS REPORT WELL-MONITORING DATA

The analysis that follows compares well-monitoring data contained in the PWCC-HDR with the data that corresponds to them in the USGS 92-99 Reports (Note that, as part of the 92-93 Report [Littin and Monroe, 1994], the USGS again ran the computer simulation it had previously performed for the N aquifer 89-90 report). The following analysis looks at the four N aquifer material-damage concerns identified in the CHIA.

A. CHIA Concern No. 1.--Structural Stability of the N aquifer Due to Reduction of the Potentiometric Head

**MATERIAL-DAMAGE CRITERION: Maintain potentiometric head
100 feet above top of N aquifer at any point to preserve confined
state of aquifer.**

PWCC withdrew a total of 3,700-4,343 acre-feet per year from all its wells during calendar years 1993-1999 (Peabody Western Coal Company, 1999, Table 19). The Bureau of Indian Affairs, Navajo Tribal Authority, and Hopi Tribe operate about 70

municipal wells and there are another 270 windmills in the Black Mesa Area that withdraw water from the D and N aquifers. Figure C-1 (Appendix C) shows water withdrawn from the N aquifer by PWCC and municipal users through 1999, as estimated on the basis of USGS information (Thomas and Truini, 2000). Municipal withdrawals are broken down by confined and unconfined sources.

A total of 7,110 acre-ft were withdrawn from the N aquifer in 1999, a 0.7 percent increase from 1998. Municipal use (2,900 acre-ft) decreased about 1 percent in the confined aquifer (1,420 acre-ft) and 7 percent in the unconfined part (1,480 acre-ft) from the 1998 levels. Industrial use, mainly the eight well Peabody well field, accounted for the remaining 4,209 acre-ft, a 4 percent increase over 1998. Industrial use increased sharply from 1970 to 1972, from 740 to 3,680 acre-ft. As a percentage of the total, the industrial use has declined from about 75 percent in the 1970's to about 60 percent in the late 1990's.

Figure C-2, based on PWCC-HDR information, shows a breakdown of PWCC's annual N aquifer pumpage by individual well since 1969. Table C-1 summarizes PWCC's annual withdrawal from the aquifer and gives the calculated mean annual withdrawal from 1969 through 1999. As the table indicates, the 1999 PWCC well-field withdrawal (4,209 acre-ft) was about 4.4 percent greater than the 4033 acre-ft average withdrawal for 1998, and 7.87 percent greater than the 3,902 acre-ft average annual withdrawal for the last 10 years (1989-1998). Variations in annual N aquifer withdrawal are attributed to fluctuations in demand for coal, availability of surface water for road dust suppression, and frequency of clear-water flushing for maintenance of the coal slurry pipeline.

Table D-1 (Appendix D) summarizes both the 1998 and 1999 average N aquifer water levels in PWCC's well-field while not pumping and the 1998 and 1999 maximum water-level drawdown in the field while pumping. Estimated on the basis of PWCC's well-monitoring data, the lowest potentiometric head of the N aquifer at the PWCC well field in 1999 was 767 feet above the top of the aquifer in well No. 8. Figures D-1 through D-8 (Appendix D) show average non-pumping water levels during the life of each well, as well as the level of the top of the N aquifer and the material-damage level.

Table E-1 (Appendix E) shows water levels the USGS measured in the Black Mesa area at selected community water-supply wells and at monitoring wells (Data from Thomas and Truini, 2000). For this report, OSM has placed additional focus on wells near the periphery of the aquifer, due to concerns regarding the potentiometric head levels and the material damage criterion. One site mentioned in previous WRCC reports, USGS observation well BM3 near the town of Kayenta, has an N-aquifer water level less than 100 feet above the top of the aquifer. The potentiometric surface in this well decreased from 100.0 feet above the N aquifer in 1963 to 10.5 feet in 1999 (Up until the USGS 99 report, the prestress water level in BM3 was reported at 77.1 feet below the ground surface, placing the prestress level

at 77.9 feet from the top of the N aquifer. In the 99 report, the prestress water level was changed to 55.0 feet below ground surface, to "more accurately represent prestress conditions"). The change in the potentiometric level at BM3 from the 1989-1990 USGS report to the 1999 report is -14.1 feet.

The majority of the lowering of the potentiometric surface in the area near BM3 can be attributed to municipal use. Well BM3 is located southwest of Kayenta near the outcrop of the Navajo Sandstone and is strongly influenced by community pumping. In 1999, approximately 579.9 acre-ft were withdrawn from the N aquifer at this location by BIA and Navajo Nation wells. This is 9.25% higher than the withdrawal in 1989 from the confined portion of the aquifer (530.7 acre-ft). The Kayenta municipal pumping accounts for 41% of all the non-industrial pumpage from the *confined* portion of the aquifer and 20% of all municipal production from the N aquifer (confined and unconfined). PWCC's current contribution to the total drawdown of 90 feet at BM3 is estimated at 13 to 15 feet with the municipal pumping accounting for the remaining 75 feet.

In addition to BM3, USGS measurements indicate that the potentiometric surface at several other wells has remained less than 100 feet above the top of the N aquifer but have changed only slightly from the levels noted in the 1989-90 USGS report. Included in this group of wells are the White Mesa Arch, Sweetwater Mesa, Rough Rock 10R-111 and 10R-119, and Howell Mesa wells. Information regarding the prestress and 1999 potentiometric surface for these wells is presented in the following table:

Well (Prestress Date)	Prestress Level-Feet Above N aquifer (Depth to Top of N aquifer)	1999 Water Level (Feet Above N aquifer)
BM3 (1963)	100 (155)	10.5
White Mesa Arch (1953)	62.0 (250)	29.4
Sweetwater Mesa (1967)	60.6 (590)	50
Rough Rock 10R-111 (1954)	40.0 (210)	15.0
Rough Rock 10R-119 (1952)	53.4 (310)	54.0
Howell Mesa (1954)	98.0 (310)	39.8

These wells are also located near the outer edge of the confined portion of the aquifer. The 1999 level of the potentiometric surface above the N aquifer in these wells ranges from 15 feet (10R-111) to 54.0 feet (Rough Rock 10R-119). The potentiometric surface of the N aquifer in the wells (including BM3) has not changed

significantly since 1989 when the CHIA was written, ranging from +2.9 feet in 10R-111 to -14.1 feet at BM3. Graphs for these wells provided in the 1999 report (Figure F-9) indicate that a reduction in the potentiometric surface in Howell Mesa and White Mesa Arch occurred in the 1979-1980 time frame. However, the change in the potentiometric surface in wells Roughrock 10R-119 and Sweetwater Mesa since prestress has been small. Overall, the decrease in the potentiometric surface at these wells since 1980 has not been significant. Modeling efforts project that Howell Mesa is the only well that will have additional drawdown by 2006 that is significant, approximately 30 feet, with approximately 20 feet a result of PWCC pumping. However, the results of the monitoring in the Howell Mesa well shown by Figure F-9 suggest that this amount of drawdown may not occur.

It is clear from the data that there are wells located in areas near the confined/unconfined aquifer transition zone where the potentiometric surface is less than 100 feet above the top of the N aquifer (as were prestress levels in five of the six wells noted in the previous table). From a SMCRA regulatory viewpoint, a finding of material damage compliance review is more involved than simply determining that the potentiometric surface is less than 100 feet above the top of the aquifer at a single well. Several points must be noted:

- o Under SMCRA, the material damage criteria limits only apply to PWCC. They were not developed and nor intended to be a general management tool for the N aquifer. The contributions of other users to the total impacts have no bearing on whether PWCC is in compliance with SMCRA criteria. For this reason, PWCC's compliance with the criteria are evaluated using computer simulation. This is noted in page 5-5 of the CHIA (Well production section).
- o Criterion 1 is aimed at preventing the N aquifer potentiometric surface from falling to a level that will cause structural collapse of the aquifer matrix (as it is also stated in the CHIA). This is to prevent permanent damage to the aquifer. The degree of potential collapse is dependent on the mineralogy and strength of the matrix, applied stress (includes force or weight of overlying strata), and the amount of head above the aquifer.
- o Recent studies regarding land subsidence and consolidation of confined aquifer systems due to pumpage or drainage of groundwater are focused exclusively on *unconsolidated* sediment sequences (example: USGS Circular 1182, 1999). This is due to the fact that the ability of these unconsolidated sediments to rebound after the potentiometric surface recovers is limited by the irreversible deformation of aquitards, often dominated by clay components. On the other hand, the ability of consolidated or cemented aquifer matrixes such as the N aquifer sandstone to withstand deformation

due to the lowering of pore pressure is several orders of magnitude larger than the unconsolidated systems, and subsidence and aquifer collapse are far less of an issue.

- A key component of the total stress on an aquifer matrix is the weight of the rock strata that overly the aquifer. In the confined/unconfined transition area where the wells noted previously are located, the thickness of the overlying strata is thin (155-590 feet) as compared to that in the central part of the aquifer (>2,000 ft). Therefore, as the fluid pressure is reduced by water withdrawal, the effective stress on the aquifer skeleton caused by the weight of the overlying strata is increased, but to a much smaller degree as compared to what would be present in the central part of the aquifer under the same head reduction conditions.
- Analyses of the aquifer material by PWCC demonstrate the matrix of the N aquifer is a highly competent sandstone. The samples used in the analysis were collected from outcrop areas, and thus were subjected to weathering, and likely produced test results that overestimated the effect of drawdown on the aquifer skeleton. The calculations obtained from laboratory measurements suggested there could be a 0.6 foot reduction in the thickness of the N aquifer if pumping continued to 2033, less than an 0.1 percent decrease. Using compressibility values that are more representative of unweathered rocks at depth, the decrease in aquifer thickness may be an order of magnitude smaller, or 0.06 feet. This analysis strongly suggests that the 100 foot criterion may be overly conservative.

As previously noted, OSM's evaluation of material damage is closely linked to computer modeling. In 1983, the USGS developed a model of the N-aquifer system, recalibrating this model in 1988; the USGS 89-90 Report (Sottolare and others, 1992) summarizes the simulated water-level results of 1989 and 1990 runs of the model. The USGS last ran the model in 1994 (Littin and Monroe, 1994) and from the results of the modeling the USGS 1994 report concluded that:

- simulated water-level declines at Tuba City were not affected by PWCC's N-aquifer pumping, and simulated declines of more than 1 foot attributed to PWCC pumping were located no closer than 16 miles from Tuba City;
- from 1965 to 1993, PWCC pumping caused 15 feet of the total 42 feet of simulated water-level declines (that is, 15 feet of drawdown) at Kykotsmovi PM1;

- during the same period, PWCC pumping accounted for 44 feet of the total 64 feet of simulated drawdown at USGS observation well No. BM 5;
- near Pinon, the simulated drawdown was 102 feet for the period 1969 - 93, of which 64 feet were attributable to PWCC pumping (the measured drawdown in the Pinon water-supply well had been 96 feet since 1970); and
- at Chilchinbito, the simulated 1965-1993 water-level decline was 57 feet, 46 feet resulting from PWCC pumping (however, measured water-level declines were slightly less than those simulated).

While the potentiometric surface elevations in several wells are less than 100 feet above the top of the N aquifer, it is unlikely that significant collapse of the aquifer has or will occur as a result of the drawdown given the low potentiometric levels in the wells when completed, the shallow depth of the aquifer, and the strength of the Navajo aquifer matrix. Monitoring information indicates that significant change in the potentiometric surface is not occurring. N aquifer drawdown in the confined part of the aquifer, away from the unconfined/confined transition zone, is above the material damage criterion elevation and is generally consistent with USGS modeling.

Therefore, on the basis of available information, OSM concludes that material damage to the hydrologic balance of the N aquifer, caused by mining, with respect to maintaining the potentiometric head above the top of the N aquifer, has not occurred.

**B. CHIA Concern No. 2. Degradation of N-Aquifer Water Quality
Due to Increased Migration Rate of Water from the D aquifer**

MATERIAL-DAMAGE CRITERION: A value of leakage from the D aquifer not to exceed 10 percent from mine-related withdrawals.

The CHIA addressed the possible degradation of N aquifer water quality owing to the increased migration rate of water from the D aquifer by using the USGS model of the N aquifer system. Specifically, the CHIA evaluated the model's simulation of predicted changes in the annual volume of leakage from the D aquifer to the N aquifer owing to mine-related withdrawals from the N-aquifer. Neither the USGS nor PWCC monitors water levels in the confined portion of the D aquifer as part of its monitoring effort. D aquifer water-level information would be needed to directly evaluate the change in leakage from the D aquifer to the N aquifer. The USGS 89-90 Report assumed no significant change in D-aquifer water levels for the 1989-90

reporting period; therefore, it also assumes that any change in leakage from the D aquifer to the N aquifer is attributable solely to change in the level of the N aquifer from the water level in previous years (Sottolare and others, 1992; Littin, 1993; J.S. Sottolare, U.S. Geological Survey, oral communication, September 1992).

The USGS (Eychaner, 1983) predicted that any increase in leakage from the D aquifer would first appear as increased TDS or specific (electrical) conductance in the PWCC wells. TDS is reliably estimated by measuring the specific conductance of a water sample. The USGS also identified increased chloride and sulfate concentrations as important indicators of increased D-aquifer leakage.

OSM evaluated the question of leakage from the D aquifer to N aquifer by analyzing N aquifer production well water quality. OSM reviewed PWCC's water-quality monitoring data for TDS, sulfate, and chloride and found in them no significant trend of increasing concentrations of any of these constituents for any well (See Figures F-1 through F-8 in Appendix F). Sulfate levels in the PWCC wells have remained relatively consistent since 1993.

PWCC evaluated the data collected from 1986 - 1999 to look for trends in N-aquifer water quality. PWCC used the Mann-Kendall test for trend to determine the slope and statistical significance of changes in N-aquifer water quality. PWCC analyzed N-aquifer water-quality data from its eight wells for the purpose of identifying any trends they display for concentrations of the dissolved constituents boron, calcium, chloride, fluoride, magnesium, pH at 25° C., sodium, TDS, sulfate, and bicarbonate as HCO₃. A comparison of 1998 and 1999 data indicates a number of changes have occurred in several parameters. Positive trends "lost" during 1999 include sodium at NAV2, and sulfate and TDS at NAV8. New trends of increasing concentration were noted for bicarbonate at NAV2 and for boron at NAV4 and NAV6. PWCC notes that since 1992 increasing trends have been noted for boron at NAV3,4,7, and 8 and for bicarbonate at NAV3. However, bicarbonate levels in NAV3 are now at pre-1989 levels. Although there are slight increasing and decreasing trends in the N aquifer water, the use potential for the Navajo aquifer water remains unchanged, and remains suitable for all domestic and livestock uses. It should be noted that although the Mann-Kendall has detected these "positive" trends, they are not statistically significant and water quality in the PWCC N aquifer wells remains high.

To meet EPA monitoring requirements for the Federal Lead and Copper Rule for public water systems, eight samples were collected at selected public access taps in PWCC's water distribution system. All values for lead and copper were below the limits set by EPA. Data were also collected for pesticides, herbicides, PCB's, Be, and Th at wells 2,4,7, and 8. All concentrations were below EPA target limits.

OSM also reviewed the N aquifer water-quality information the USGS had collected at 12 locations (Thomas and Truini, 2000; Table G-1 in appendix G). A comparison

of the data with U.S. EPA Primary and Secondary Drinking-Water Regulations showed the concentrations of most constituents were below the Maximum Contaminant Levels (MCL's) and Secondary Maximum Concentration Levels (SMCL's).

Total dissolved solids concentrations in the 12 wells that were sampled range from 91 to 630 mg/L. Two wells were noted to have higher TDS and chloride, Keams Canyon PM2 and Rough Rock PM5. The TDS levels in these wells exceeds the 500 mg/L SMCL. However, the data indicate the concentration of these constituents has changed little from 1983 (USGS 99 Report, Table 14). The arsenic concentrations in these wells were noted at 40 and 48 ug/L respectively. These concentrations are within the current MCL (50 ug/L) but would be more than the proposed new standard (5 ug/L). Data indicate that these levels of arsenic have been consistent, with the level at Keams Canyon 2 at 44 ug/L in the 91-92 USGS report and 46 ug/L for Rough Rock PM5 in the 90-91 report. The USGS 99 Report also notes that the SMCL for pH, 8.5, was exceeded in 10 of the 12 wells.

Overall, the water quality in eight of the wells has had small variations in TDS, chloride, and sulfate, but increasing or decreasing trends are not apparent.

Although the long-term water-chemistry has remained stable, several localized changes in N aquifer water quality have been noted from 1991-1999. The USGS 91-92 Report noted an increase in the concentrations of dissolved solids, dissolved chloride and dissolved sulfate at the PM3 well at Chilchinbito between 1988 and 1991. However, they believe this increase was caused by failure of the cement seal around the well casing allowing leakage along the casing because: 1) the change was sudden, 2) the water level in the well rose 40 feet (near the level expected for the D-aquifer), and 3) well development in the area had been slight. The USGS 1994 report noted an abrupt increase in sulfate in the Chilchinbito well NTUA1 and attributed the increase to a change in the pump intake setting to a much shallower level in the well and a marked reduction in pump lift capacity (USGS, 1994). In this case a pump was lost in the well and replaced by a smaller capacity pump. The TDS increase is probably due to a "skimming" effect since the water withdrawn at the shallower level is a mixture of D and N aquifer water (Littin, United States Geological Survey, oral communication, March 1998). In 1994 an increase in the TDS concentration in Forest Lake NTUA1 well was first noted. In 1990 the TDS was reported at 226 mg/l, and in 1994 it was 430 mg/L. The highest concentration was reported in 1997 at 714 mg/L. At this well location, pump capacity had declined and a new pump was installed in 1996. Although the pump was replaced, the water quality in this well still suggests some mixture of D- and N aquifer water that may be attributed to leakage through a incompetent seal (Littin, United States Geological Survey, Personal communication, March 1998). The TDS in 1999 (259 mg/L) was significantly lower than the 1998 level of 350 mg/L.

The USGS 1999 Report (as did the 1994-1998 USGS reports) concludes, on the basis of the collected information, that regionally, long-term water-chemistry has remained stable.

On the basis of available water-quality monitoring data, OSM concludes that material damage to the hydrologic balance of the N aquifer, caused by mining, with respect to leakage from the D aquifer to the N aquifer, has not occurred.

C. CHIA Concern No. 3.—Reduction of N-Aquifer Spring Discharge Rates Due to Alteration of Potentiometric Surface

MATERIAL-DAMAGE CRITERION: A discharge reduction of 10 percent or more, caused by mine related withdrawals based on results of N-aquifer simulation.

Although this material damage criterion is based on the computer simulation of spring flow, monitoring data from the USGS report are discussed in this section for informational purposes. The USGS measured discharge at four springs in 1999 as it has in prior years (Figure A-5). Flow measurements taken by the USGS at the springs over the period of record are provided in Figure A-6. The USGS notes that the discharges at the springs represent only a part of the total discharge because of the separate seeps and problematic sampling conditions. Burro Spring, to the southwest of the confined portion of the N aquifer, can be evaluated for the entire period of record. The "consistent" monitoring periods (taken at the same measuring points) of the Dennehotso spring (1992-1999), Moenkopi Spring (1987-1999), and Pasture Canyon spring (1995-1999) are variable for each spring as noted. For the consistent periods of records at all four springs, the USGS concludes discharges have fluctuated, but increasing or decreasing trends are not apparent.

In regard to the N aquifer simulation, the USGS last performed a computer simulation of the N aquifer and the impact of pumping to spring discharge for its 1994 Report.

In that simulation, the low flows in the springs near Tuba City decreased by less than 1 percent under all pumpage scenarios. It should be noted that the actual measured flows at Moenkopi School Spring, located near Tuba City, have been consistent since 1987 (Table 7, Thomas and Truini, 2000).

On the basis of the most recent N aquifer computer model simulation and available USGS monitoring data, OSM concludes that material damage to the hydrologic balance of the N aquifer, caused by mining, with respect to N-aquifer spring flow, has not occurred.

D. CHIA Concern No. 4.--Reduction of Alluvial Flow Rates Due to the Reduction of N-Aquifer Discharge to the Alluvium

MATERIAL-DAMAGE CRITERION: A discharge reduction of 10 percent or more, caused by mining.

As noted earlier in this report, the USGS performed a computer simulation of the N aquifer for the 1994 Report. The simulated low flow in Laguna Creek under scenario "A" of the model, which included all pumpage, decreased from 3.49 ft³/s in 1965 to 3.01 ft³/s in 1993. By using industrial pumpage alone, simulated low flow decreased to 3.36 in 1993. Therefore, the mine-related withdrawals result in a reduction of 3.7 percent in low flow. In addition, the simulated low-flow in Moenkopi Wash decreased by less than one percent.

Although the material damage criterion is based on a computer simulation, surface-water monitoring data were examined by OSM to determine if any significant trends are developing in the surface-water low flow rates. Low flow in the major washes at Black Mesa are for the most part the result of ground-water discharge. The 1999 report discusses the surface-water flows in Moenkopi Wash, Laguna Creek, Dinnebito Wash, and Polacca Wash where continuous-record discharge data were collected. The USGS found that the annual average discharges varied considerably for the periods of record, and therefore trends are difficult to discern; but they did note that discharges in Moenkopi Wash appear to be more variable during the last ten years (Figure F-10). However, the USGS does not speculate on any specific factor causing this trend, although precipitation variability is a likely contributor.

In addition, ground-water discharge components of the surface-water flows were estimated by computing the median flow for the four winter months of November, December, January, and February. The 1999 report states that although the median flows for these months are used as an index of ground-water discharge rather than an absolute estimate of discharge, they are useful for evaluating trends in ground-water discharge. The USGS found that the median discharges for the four gaging stations had much less year-to-year variability than the annual average discharges (Figure F-10). This was expected because the median flows are mostly ground-water discharge and the annual average discharges are mostly controlled by precipitation, that varies considerably. The overall finding by the USGS is that increasing or decreasing trends are not apparent in the median flows for all four gaging stations for the periods of record.

Therefore, on the basis of the most recent N aquifer computer model simulation and an analysis of available USGS monitoring data, OSM concludes that material damage to the hydrologic balance of the N aquifer, caused by mining, with respect to N aquifer discharge to the alluvium, has not occurred.

IV. SUMMARY AND CONCLUSIONS

OSM reviewed and analyzed the information contained in the PWCC-HDR and the USGS 93-99 Reports and compared this information to the CHIA material-damage criteria. On the basis of its review and analysis, OSM concludes that:

1. During 1999, PWCC collected hydrologic data from all of its eight wells. The monitoring data indicate that, during that year, the water level in the N aquifer production wells was at least 767 feet above the top of the N aquifer under both pumping and nonpumping conditions.

2. Neither PWCC's N aquifer water-quality monitoring data nor water-quality monitoring data in the USGS's 93-99 Reports document any significant increase in chemical parameters identified by the USGS as indicators of increased leakage from the D aquifer. These parameters are TDS (or specific conductance), sulfate, and chloride. However, several well-specific increases in parameters have been attributed to equipment alterations or well seal problems.

3. The USGS performed a computer simulation of the N aquifer, including N-aquifer spring flow, for its 1994 Report. The simulated low flows in the springs near Tuba City decreased by less than 1 percent under all pumpage scenarios. Flow data collected at springs (Figures A-5 and A-6) by the USGS have not revealed any significant increasing or decreasing trends. The USGS concludes that, "For the consistent periods of record at all four springs, the discharges have fluctuated; however, increasing or decreasing trends are not apparent" (USGS, pg. 22, 1999).

4. The USGS simulated N-aquifer flow to alluvium for its 1994 Report. Mine-related withdrawals result in a reduction of 3.7 percent in low flow at Laguna Creek, well within the 10 percent material damage criteria. The simulated low-flow in Moenkopi Wash decreased by less than one percent. Low-flow data collected by the USGS (Figure F-10) support the findings of the computer simulation.

On the basis of information contained in the PWCC-HDR and the USGS 93-99 Reports, OSM concludes that material damage to the hydrologic balance of the N aquifer outside PWCC's Black Mesa / Kayenta permit area, caused by mining, has not occurred.

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_____ 1997, 1996 Hydrological Data Report: Submitted to the Office of Surface Mining April 1997. On file with the Office of Surface Mining at its Western Support Center, 1999 Broadway, Suite 3320, Denver, Colorado 80202

_____ 1998, 1997 Hydrological Data Report: Submitted to the Office of Surface Mining April 1998. On file with the Office of Surface Mining at its Western Support Center, 1999 Broadway, Suite 3320, Denver, Colorado 80202

_____ 1999, 1998 Hydrological Data Report: Submitted to the Office of Surface Mining April 1999. On file with the Office of Surface Mining at its Western Support Center, 1999 Broadway, Suite 3320, Denver, Colorado 80202

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APPENDIX A

**BLACK MESA LOCATION
AND STRATIGRAPHY**

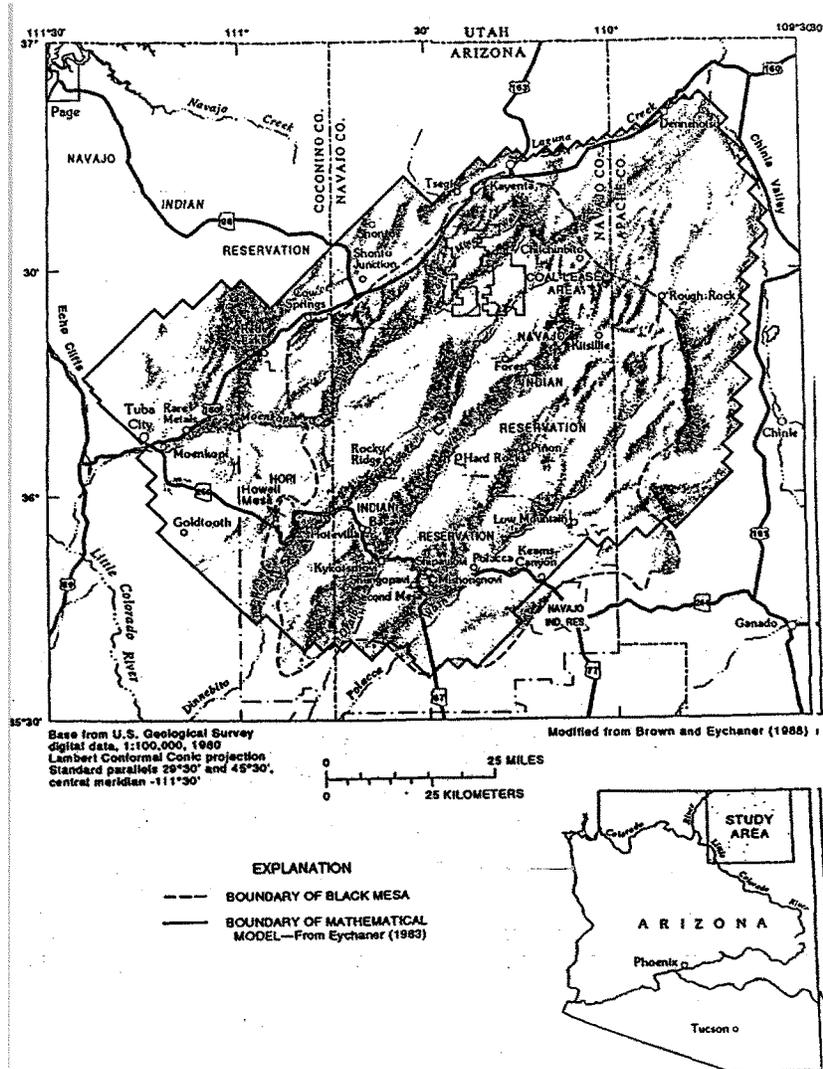


Figure A-1.—Location of the Black Mesa Study Area (Littin, Baum, and Truini, 1999, p. 2)

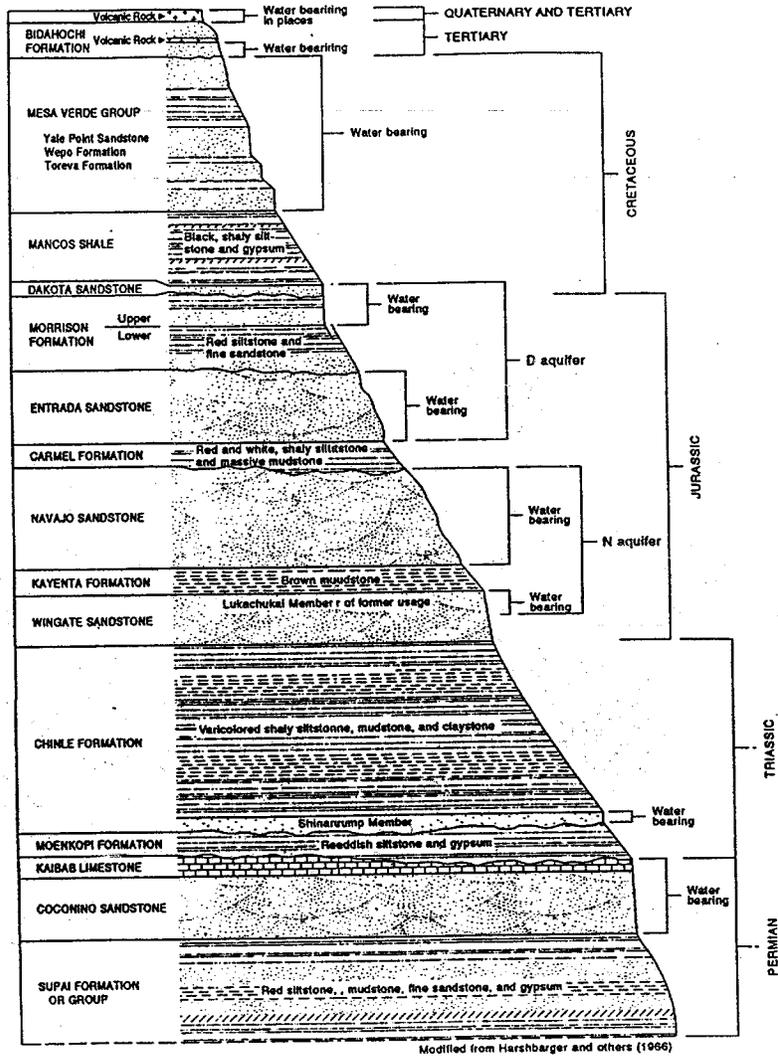


Figure A-2.—Rock formations of the Black Mesa area (Littin, Baum, and Truini, 1999, p. 4).

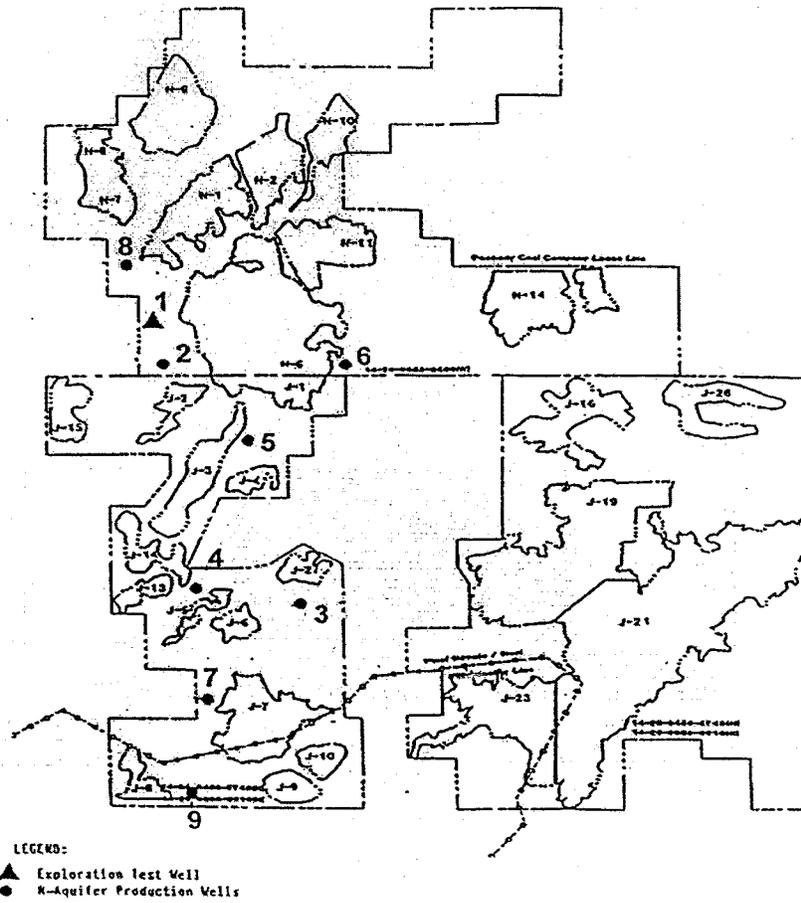


Figure A-3.—Locations of N-aquifer production wells on the Peabody leasehold (Peabody Western Coal Company, 1930, p. 83).

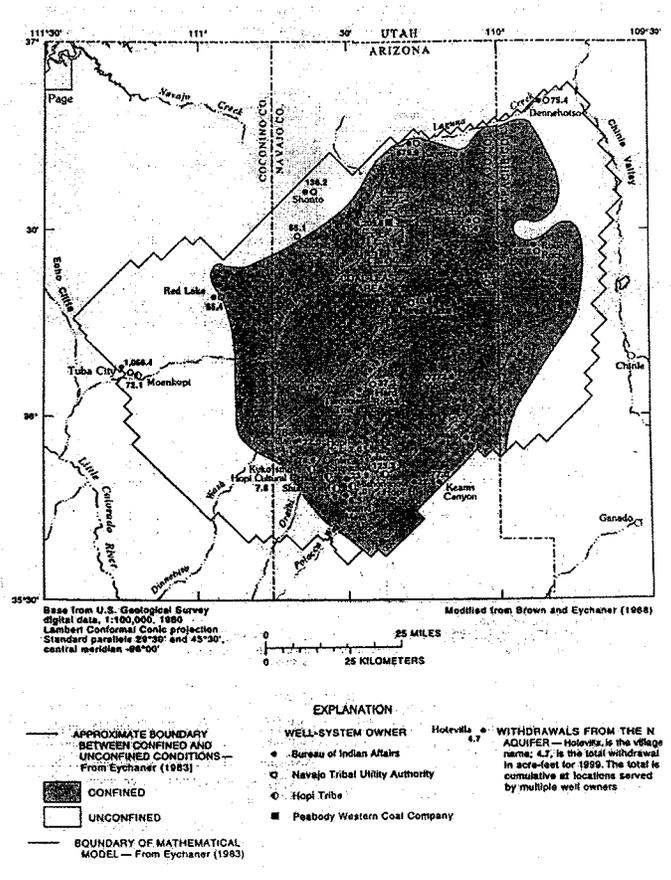


Figure A-4.—Location of well systems monitored by the USGS for water level of the N Aquifer, 1999. (Thomas and Truini, 2000, page 9.)

Table 7. Discharge measurements of selected springs, Black Mesa area, Arizona, 1952-99

U.S. Bureau of Indian Affairs site number	Rock formation(s)	Date of measurement	Discharge, in gallons per minute	U.S. Bureau of Indian Affairs site number	Rock formation(s)	Date of measurement	Discharge, in gallons per minute		
Burro Spring				Moenkopi School Spring					
6M-31	Navajo Sandstone	12-15-89	0.4	3GS-77-6	Navajo Sandstone ¹	05-16-52	40		
		12-13-90	0.4			04-22-87	² 16		
		03-18-93	0.3			11-29-88	² 12.5		
		12-08-94	0.2			02-21-91	² 13.5		
		12-17-96	0.4			04-07-93	² 14.6		
		12-30-97	0.2			12-07-94	² 12.9		
		12-08-98	0.3			12-04-95	² 12.1		
12-07-99	0.3	12-16-96	² 10						
Unnamed spring near Dennehotso								12-17-97	² 13.1
8A-224	Navajo Sandstone	10-06-54	³ 1					12-08-98	² 12.0
		06-27-84	³ 2					12-13-99	² 13.3
		11-17-87	³ 5	Pasture Canyon Spring					
		03-26-92	16	3A-5	Navajo Sandstone, alluvium	11-18-88	⁴ 211		
		10-22-93	14.4			03-24-92	⁴ 233		
		12-05-95	17			10-12-93	⁴ 211		
		12-19-96	15.7			12-04-95	⁴ 38		
12-31-97	25.6	12-16-96	⁴ 38						
12-14-98	21.0	12-17-97	⁴ 40						
12-15-99	14.8	12-10-98	⁴ 39						
				12-21-99	⁴ 38				

¹ Tongue in the Kayenta Formation.

² Discharge measured at water-quality sampling site and at different point than the measurement in 1952. Discharge does not represent total discharge from the Moenkopi School Spring system.

³ Discharge measured at different point than later measurements and does not represent total discharge from unnamed spring near Dennehotso.

⁴ Discharge measured in an irrigation ditch about 0.25 mile below water-quality sampling point and does not represent total discharge from Pasture Canyon Spring.

⁵ Discharge measured at water-quality sampling point 20 feet below uppermost spring. Discharge does not represent total discharge from Pasture Canyon Spring.

Figure A-6 : Spring Discharge Measurements (Thomas and Truini, 2000)

APPENDIX B

**SUMMARY OF PWCC's N-AQUIFER
PRODUCTION WELL COMPLETION**

Table B-1.—Length of well intervals completed in or open to geologic units in the D and N aquifers and associated formations.

(Source: Peabody Western Coal Company, 1990, chapter 15, and 1992).
(Units are in feet)

Well No.	D aquifer			N aquifer			
	Morrison	Entrada	Carmel	Navajo	Kayenta	Wingate	Chinle
2	0	0	27	735	150	194	0
3	0	0	10	690	170	268	0
4	26	160	150	700	60	308	0
5	203	155	150	725	155	229	0
6	0	0	0	684	160	294	18
7	0	122	150	690	165	206	0
8	0	0	163	787	0	0	0
9	0	0	4	710	150	245	0

*Well No. 2 is not completed in the D aquifer; however, the annular space around its blank casing, adjacent to the D aquifer, is not grout sealed; D-aquifer water has the potential to migrate into the well bore.

APPENDIX C

**N-AQUIFER WITHDRAWAL BY
PWCC AND MUNICIPALITIES**

Table C-1.--Summary of PWCC's annual well-field withdrawal, 1969-98
 (Source: PWCC 1993, p. 36 through 40; 1999, p. 42)

Year	Volume withdrawn (acre-feet)
1969	575.0
1970	741.7
1971	1,901.6
1972	3,682.2
1973	3,521.9
1974	3,829.5
1975	3,553.4
1976	4,182.6
1977	4,088.5
1978	3,005.7
1979	3,498.6
1980	3,543.2
1981	4,008.7
1982	4,744.3
1983	4,454.7
1984	4,173.6
1985	2,517.8 ¹
1986	4,480.0
1987	3,831.6
1988	4,088.0
1989	3,454.0
1990	3,421.5
1991	4,024.5
1992	3,817.5
1993	3,703.6
1994	4,079.0
1995	4,343.5
1996	4,013.1
1997	4,132.2
1998	4,032.9
1999	4,210.0
Mean annual withdrawal, 1969 - 1999	3,601.7
Mean annual withdrawal, 1983 - 1999	3,928.0

¹ Employee strike for approximately six months reduced coal production and N-aquifer water demand.

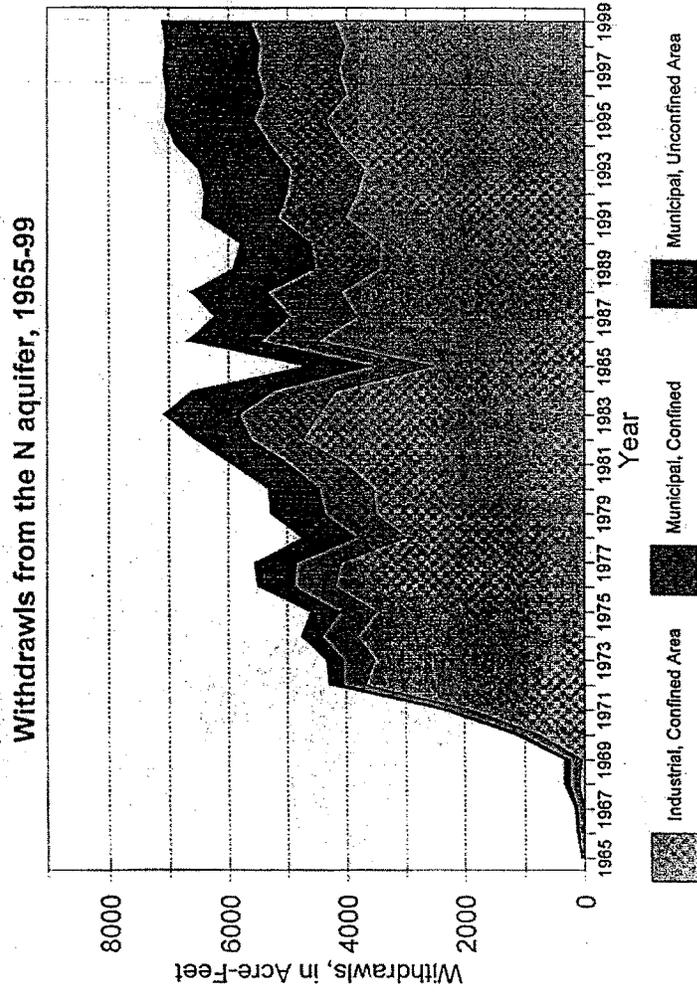


Figure C-1.--Withdrawals from the N aquifer, 1965-99 (from Thomas and Truini, 2000)

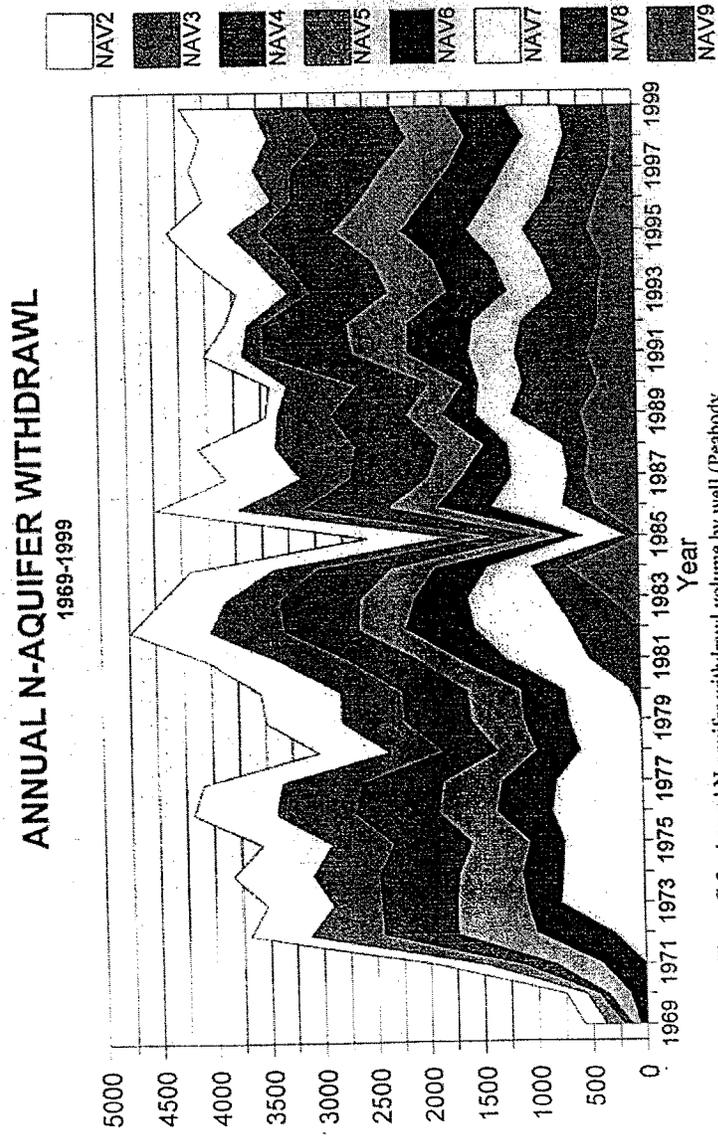


Figure C-2. Annual N-aquifer withdrawal volume by well (Peabody Western Coal Company, 1992, Table 14 and 2000, Table 19)

APPENDIX D

**N-AQUIFER WATER LEVELS AT
PWCC's WELL FIELD**

Table D-1.--Summary of N-aquifer water levels at PWCC's well field, 1998/1999.
(Units are in feet.)

Well No.	Depth to top of N aquifer ^{1,2}	1999 Average N-aquifer water-level depth while not pumping ^{1,3,5}	1998 Average N-aquifer water-level depth while not pumping ^{1,3,5}	1999 Maximum Depth to Water while pumping ^{1,4}	1998 Maximum Depth to Water while pumping ^{1,4}	Minimum water-level depth above top of N aquifer ⁵ (1999 unless noted)
2	2,550	(7)	(7)	(7)	(7)	1284 (97)
3P	2,330	1,109 ⁽⁶⁾	1114 ⁽⁶⁾	1170	1169	1160
4	2,290	952	963	1407	1382	883
5	2,610	1,363	1,370	1798	1725	812
6	2,395	1,337	1323	1375	1372	1020
7	3,925	1,098 ⁽⁶⁾	1,052 ⁽⁶⁾	1412	1427	2513
8	2,630	1,262 ⁽⁶⁾	1,248 ⁽⁶⁾	1863	1855	767
9	2,400	943	938	1317	1303	1083

¹ Depth measured from ground surface at wellhead.

² Source: Peabody Western Coal Company, 1990, chapter 15.

³ Source: Peabody Western Coal Company, 1999, Table 18.

⁴ Source: Peabody Western Coal Company, 1999, Appendix 9.

⁵ Equal to "Depth to top of N aquifer" minus "Maximum N-aquifer water-level depth while pumping."

⁶ Instantaneous measurements made with air-line bubbler (ABS) system.

⁷ No static or pumping water level measurements recorded at NAV2 during 1998 and 1999, due to malfunction of ABS system.

⁸ No true static water level measurements recorded at NAV3P, NAV7, and NAV8 during 1998 and 1999, due to near continuous operation of pump.

N-Aquifer Potentiometric Surface--PWCC Well 2

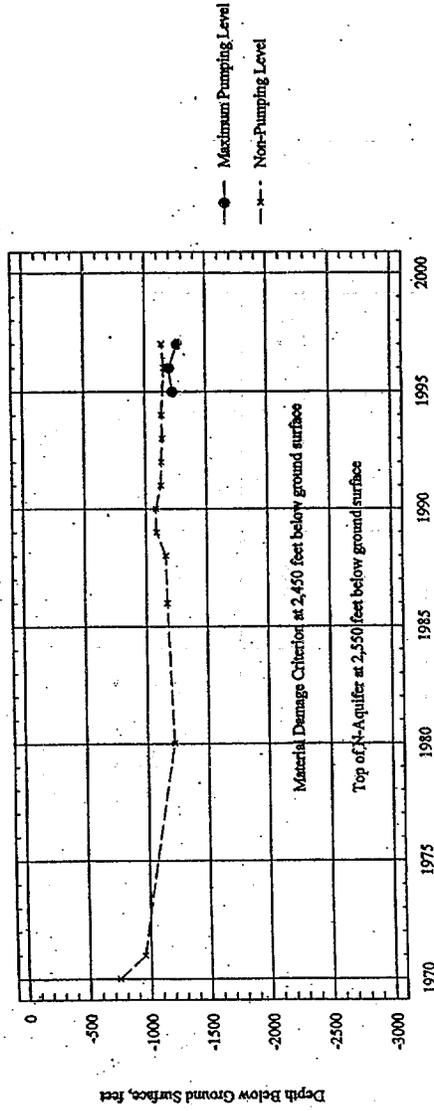


Figure D-1. Maximum Pumping and Average Non-Pumping Water Level

N-Aquifer Potentiometric Surface—PWCC Wells 3 and 3P

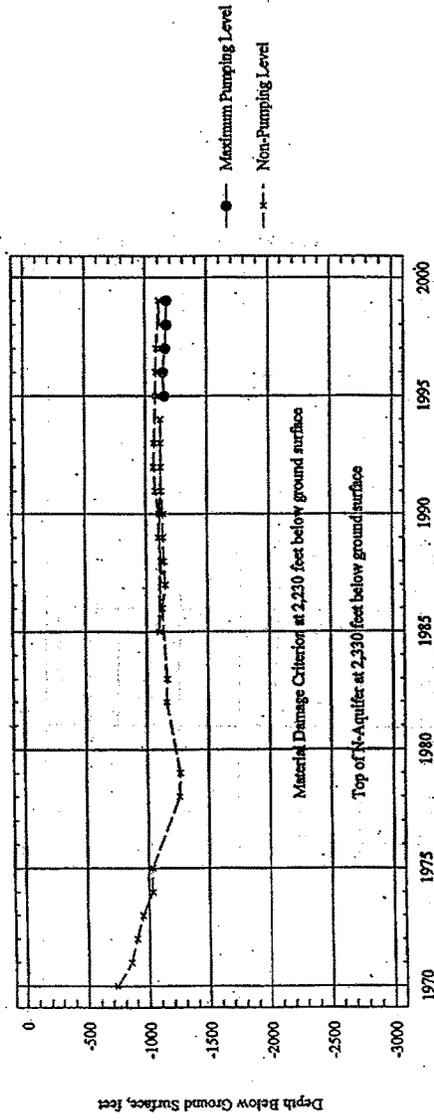


Figure D-2. Maximum Pumping and Average Non-Pumping Water Level

N-Aquifer Potentiometric Surface—PWCC Well 4

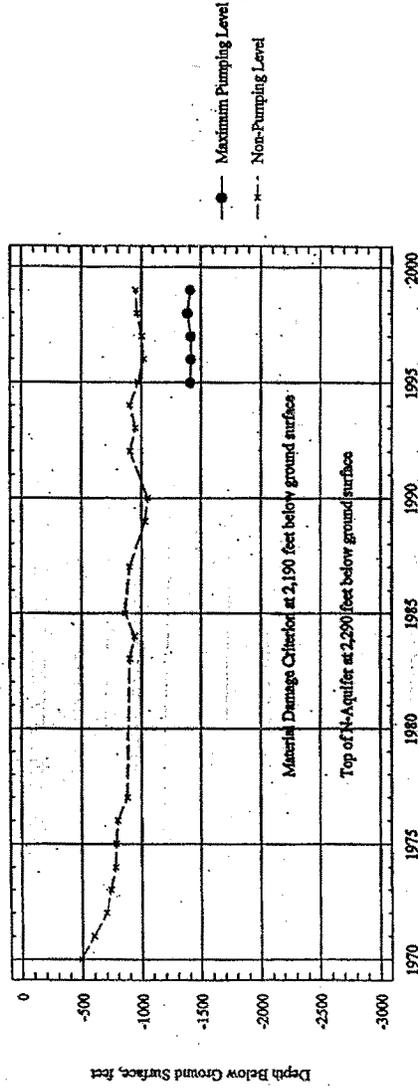


Figure D-3. Maximum Pumping and Average Non-Pumping Water Level

N-Aquifer Potentiometric Surface—PWCC Well 5

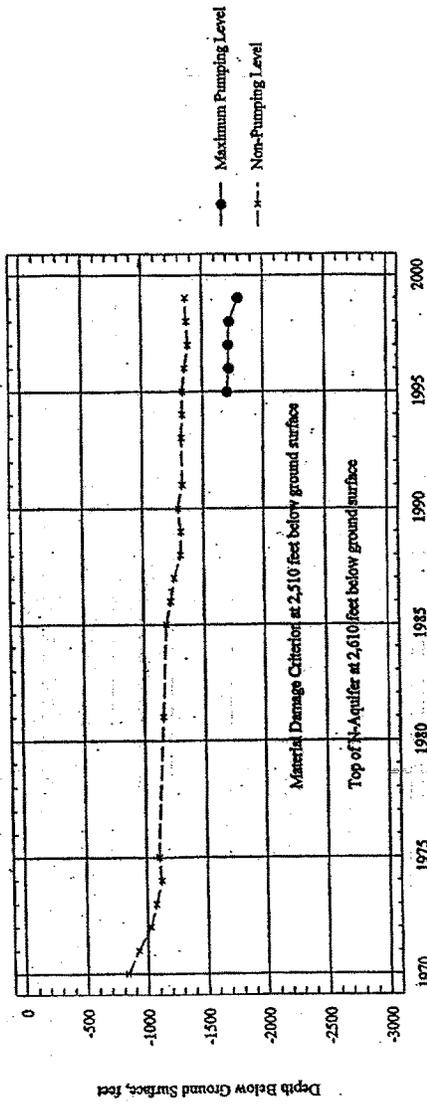


Figure D-4. Maximum Pumping and Average Non-Pumping Water Level

N-Aquifer Potentiometric Surface—PWCC Well 6/6P

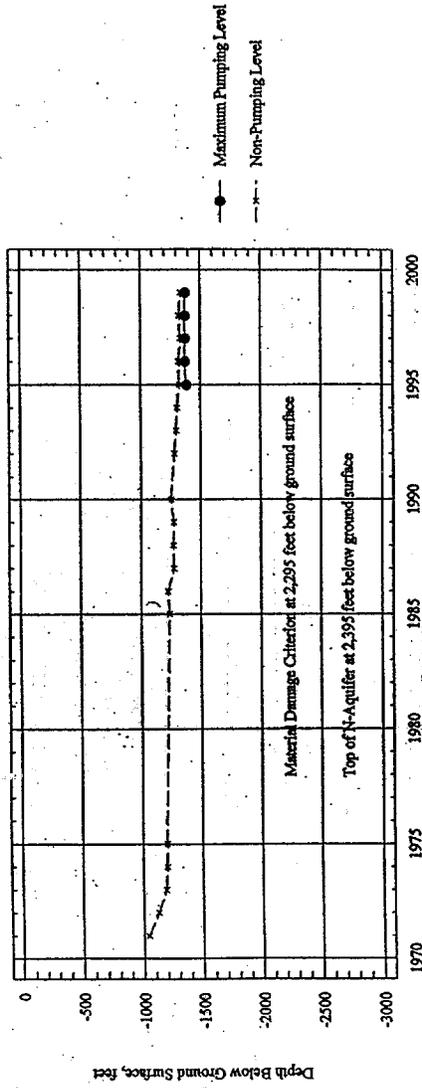


Figure D-5. Maximum Pumping and Average Non-Pumping Water Level

N-Aquifer Potentiometric Surface—PWCC Well 7

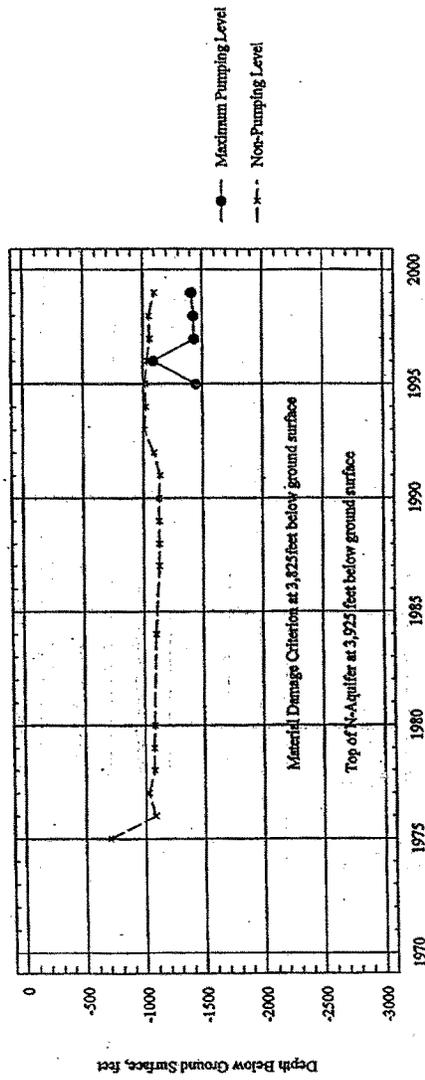


Figure D-6. Maximum Pumping and Average Non-Pumping Water Level

N-Aquifer Potentiometric Surface--PWCC Well 8

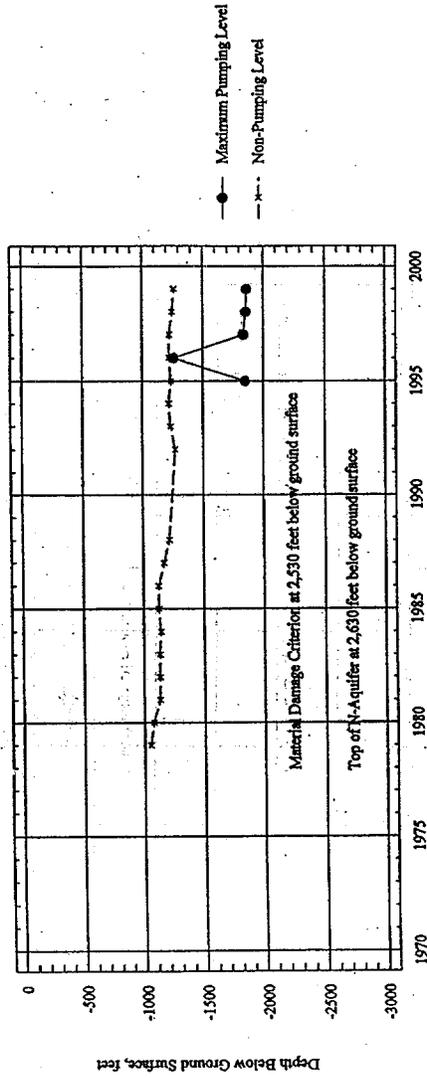


Figure D-7. Maximum Pumping and Average Non-Pumping Water Level

N-Aquifer Potentiometric Surface--PWCC Well 9

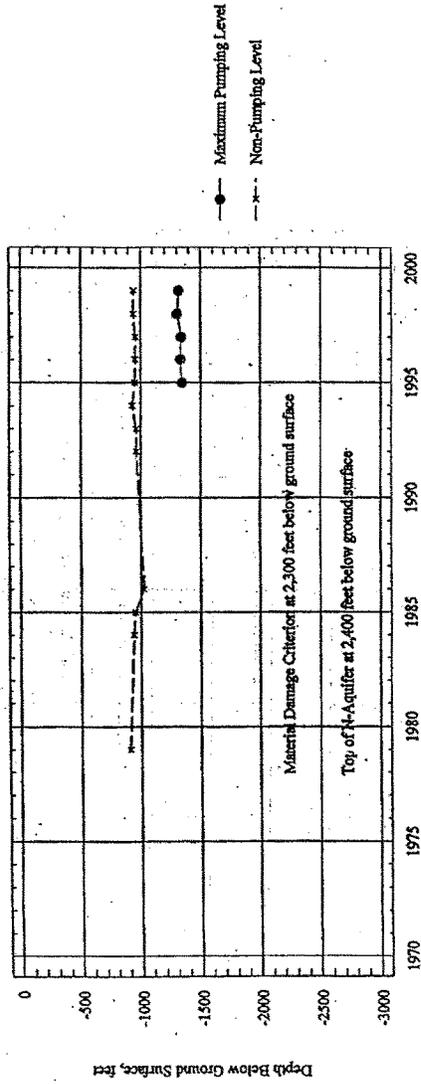


Figure D-3. Maximum Pumping and Average Non-Pumping Water Level

APPENDIX E

**WATER LEVELS OUTSIDE BLACK MESA
AND KAYENTA PERMIT AREAS, 1998**

Table E-1.--Water levels monitored by the USGS at selected community and observation wells completed in the confined N aquifer, 1999.

(Source: Thomas and Truini, 2000, Table 5, p. 13.)
(Units are in feet)

Location	Depth to top of N aquifer ¹	1999 depth to water	Height above N-aquifer	Measured drawdown since pre-stress period ²
Community Wells				
Forest Lake	1,931	1,171.3	764.5	-75.0
Keams Canyon	900	467.3	437.2	-174.8
Kykotsmovi (PM1)	890	232.9	675.8	-13.0
White Mesa Arch	250	220.6	29.4	-33.0
Sweetwater Mesa	590	540.0	50.0	-10.6
Rough Rock				
10R-111	210	195.0	15.0	-25.0
10R-119	310	256.0	54.0	+0.6
Howell Mesa	310	270.2	39.8	-58.0
USGS observation wells				
BM 2	452	201.5	250.5	-76.5
BM 3	155	144.5	10.5	-89.5
BM 5	1,520	404.1	1,115.9	-80.1
BM 6	1,950	836.7	1,113.3	-139.7

¹ Source: J.P. Sottolare, U.S. Geological Survey, Written communication, September 1992.

² Change in water level is reported to the same precision as the prestress water level.

³ USGS observation well BM3 is located southwest of Kayenta near the outcrop of the Navajo Sandstone and is strongly influenced by community pumping. The static water level in well BM3 in 1963 was 100 feet above the top of the N aquifer (Thomas and Truini, 2000).

APPENDIX F.

**N-AQUIFER WATER-QUALITY TRENDS
AT PEABODY WELL FIELD**

NAV2: Sulfate, Total Dissolved Solids, Chloride --1980-1999

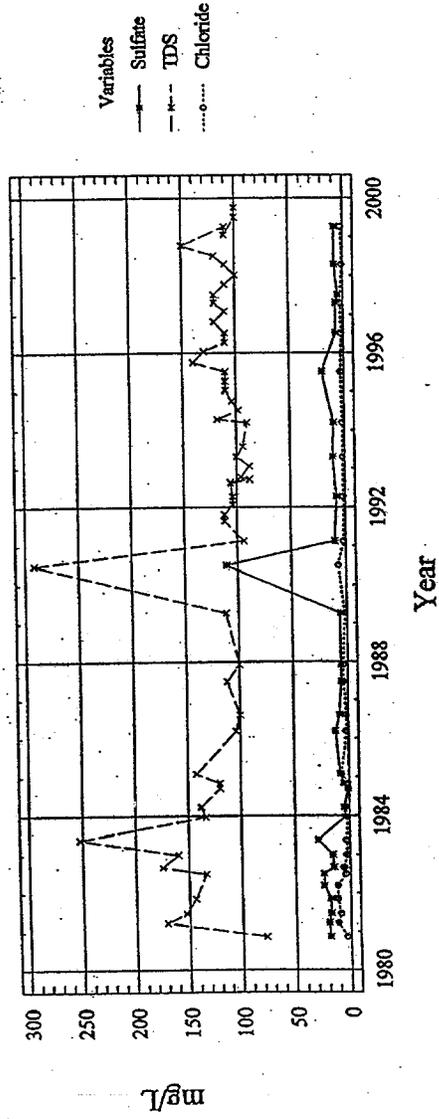


Figure F-1 : NAV2 Water Quality

NAV3: Sulfate, Total Dissolved Solids, Chloride - -1980-1999

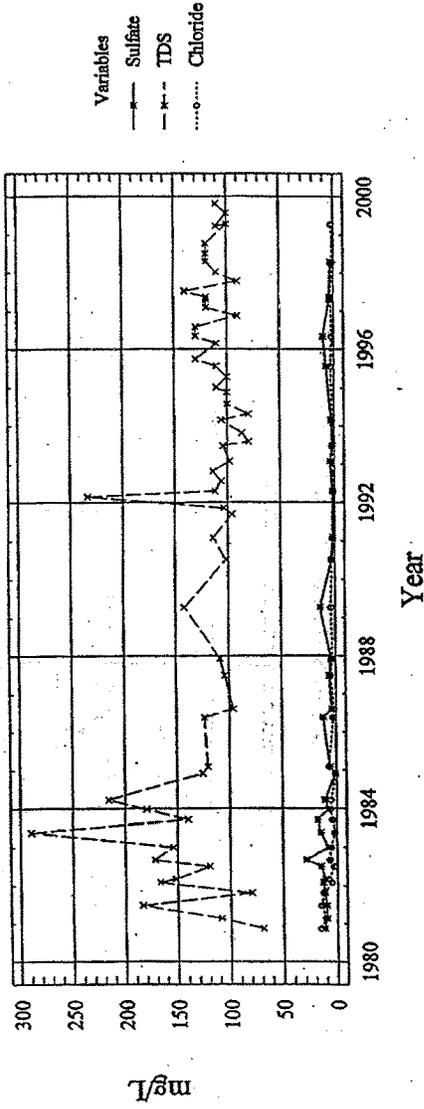


Figure F-2 : NAV3 Water Quality

NAV4: Sulfate, Total Dissolved Solids, Chloride - - 1980-1999

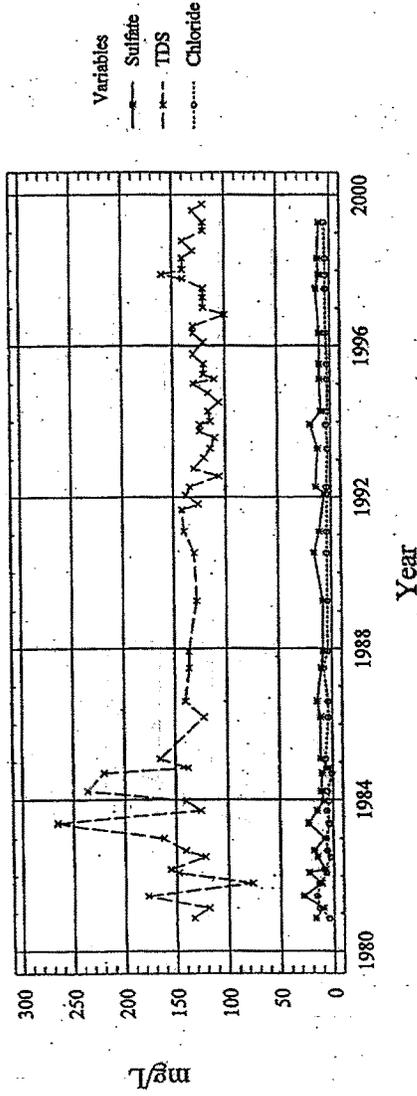


Figure F-3 : NAV4 Water Quality

NAV5: Sulfate, Total Dissolved Solids, Chloride - - 1980-1999

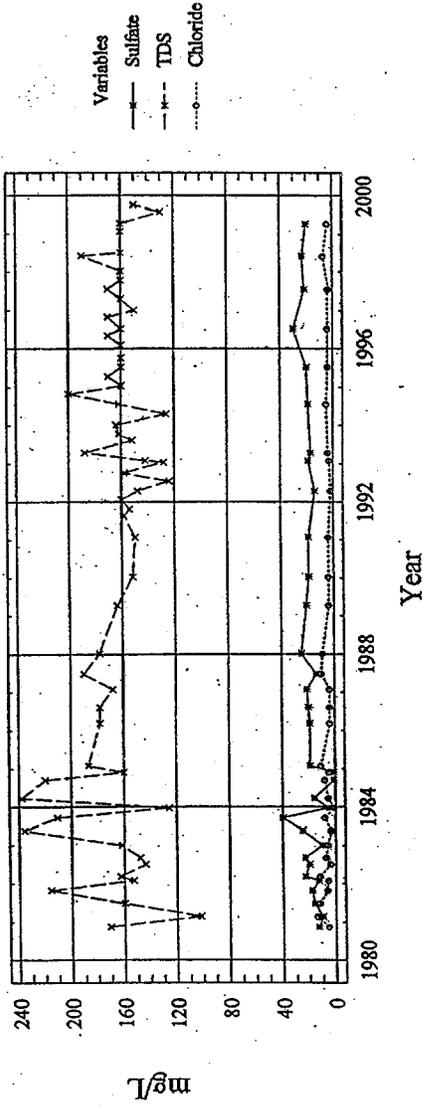


Figure F-4 : NAV5 Water Quality

F-4

NAV 6: Sulfate, Total Dissolved Solids, Chloride - -1980-1999

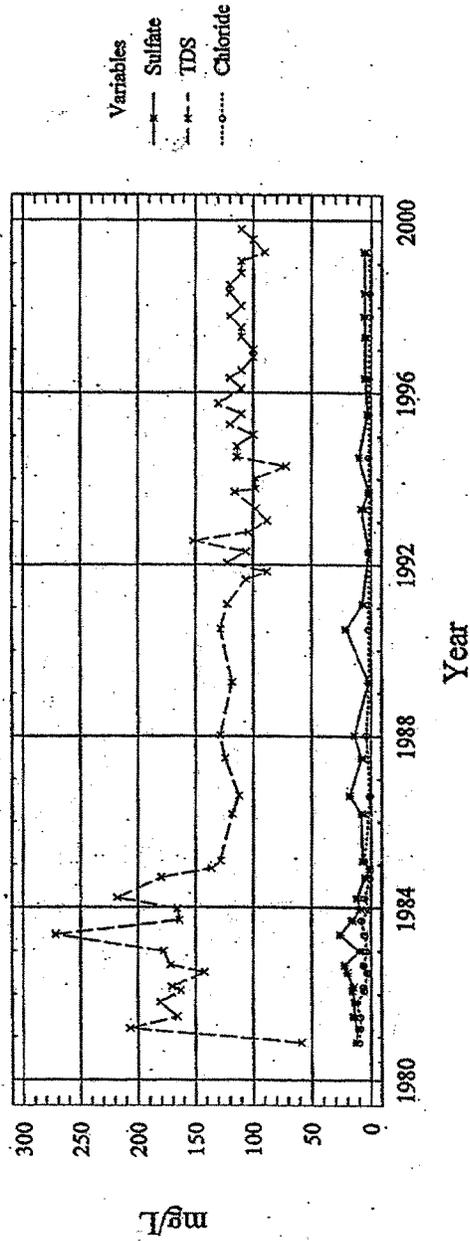


Figure F-5 : NAV 6 Water Quality

NAV7: Sulfate, Total Dissolved Solids, Chloride - - 1980-1999

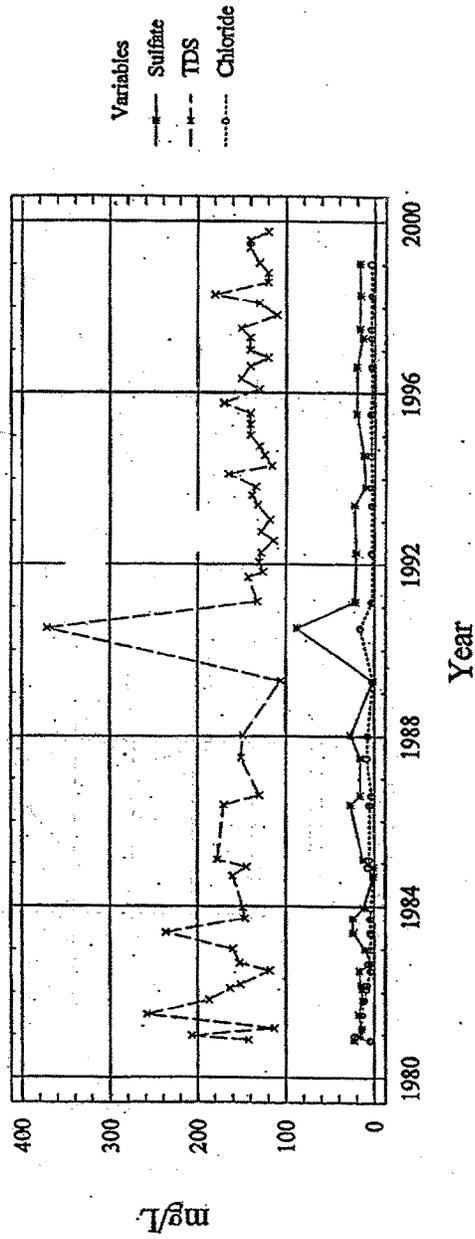


Figure F-6 : NAV7 Water Quality

NAV8: Sulfate, Total Dissolved Solids, Chloride - - 1980-1999

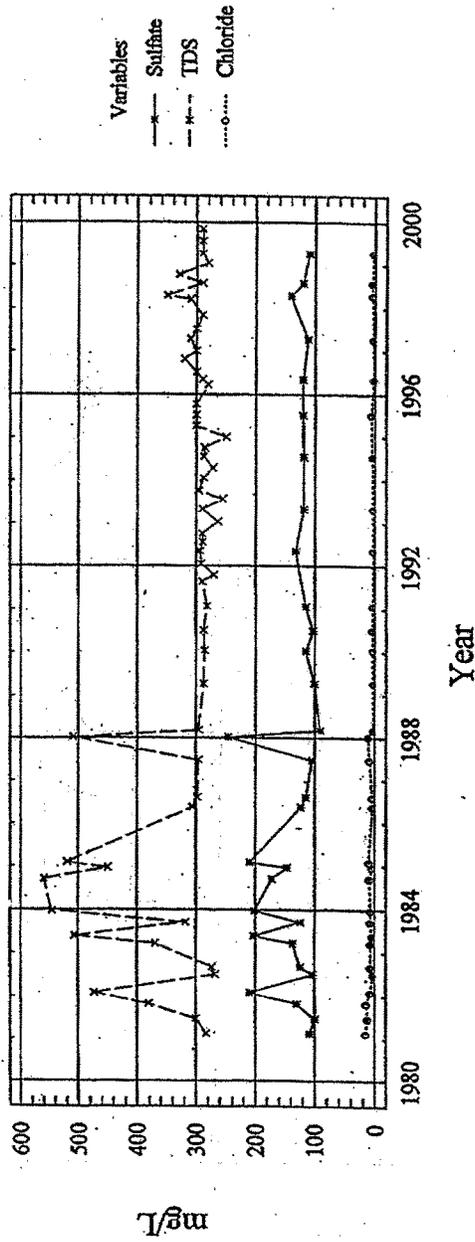


Figure F-7 : NAV8 Water Quality

NAV9: Sulfate, Total Dissolved Solids, Chloride - -1980-1999

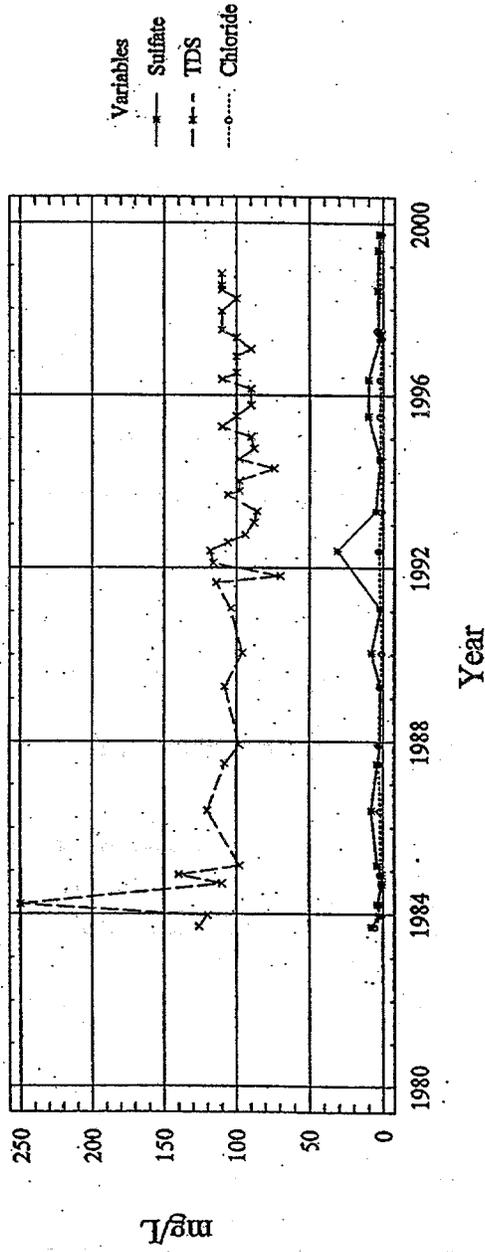


Figure F-8 : NAV9 Water Quality

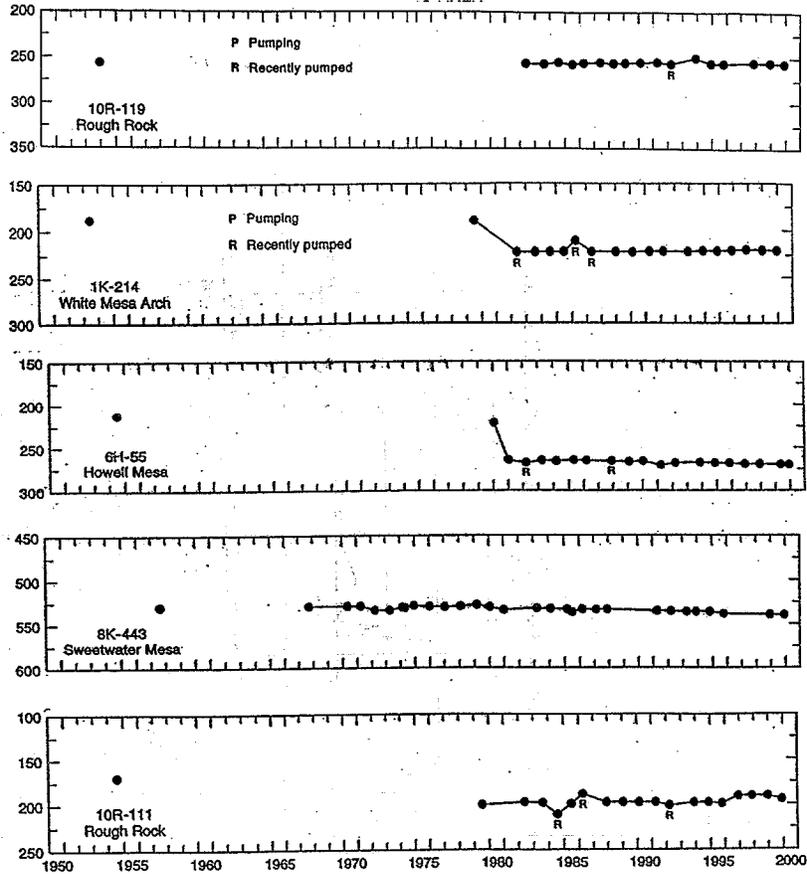


Figure F-9 - Graphs of Wells Near Confined/Unconfined Boundary (from Thomas and Truini, 2000)

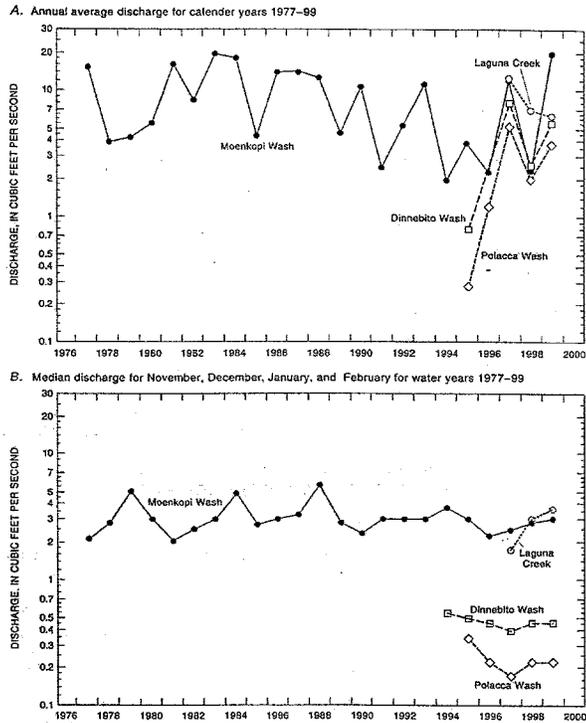


Figure 10. Annual average discharge and median winter discharge, Moenkopi Wash (09401260), Laguna Creek (05372180), Dinnebito Wash (09401110), and Polacca Wash (09400569), Black Mesa area, Arizona. A. Annual average discharge for calendar years 1977-99. B. Median discharge for November, December, January, and February for water years 1977-99.

Figure F-10 - Median Discharge and Annual Average Discharge for Main Surface Water Systems (Thomas and Truini, 2000, p.29)

APPENDIX G.

**SUMMARY OF SELECTED N-AQUIFER
WATER-QUALITY PARAMETERS**

Table G-1.—Selected properties of and constituents in water from industrial and municipal wells that tap the N Aquifer, 1968-99

(Source: Thomas and Truini, 2000, Table 14, p. 34-35)
 (uS/cm is microsiemens per centimeter at 25°C, C is degrees Celsius;
 mg/L is milligrams per liter; — is no data)

Table 14. Specific conductance and concentrations of selected chemical constituents in water from industrial and municipal wells completed in the N aquifer, Black Mesa area, Arizona, 1964-99
 (uS/cm, microsiemens per centimeter at 25°C; °C, degree Celsius; mg/L, milligrams per liter. Dashes indicate no data)

Year	Specific conductance, field (uS/cm)	Dissolved solids, residue at 180°C (mg/L)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SO ₄)	Year	Specific conductance, field (uS/cm)	Dissolved solids, residue at 180°C (mg/L)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SO ₄)					
1964	350	—	12	31	1990	1,030	600	94	24					
1992	226	131	9.8	19	1992	1,010	570	93	36					
1993	298	164	8.2	16	1993	1,040	590	92	36					
1997	305	190	11	14	1994	1,975	562	86	32					
1999	314	196	14	15	1995	1,010	606	99	32					
Carnegie (NEMA) 1														
1982	470	—	11	67	1996	1,030	596	96	34					
1990	375	226	8.2	38	1997	1,070	590	96	33					
1991	1,350	183	10	24	1998	908	558	78	29					
1993	693	352	35	88	1999	1,040	595	97	35					
1994	1,734	430	56	100	Carnegie (NEMA) 2									
1995	470	274	13	60	1997	524	269	3.6	4.3					
Do	1,030	626	86	160	1998	379	270	3.8	4.1					
Do	488	316	16	71	1999	454	274	4.0	4.1					
1996	684	368	44	79	Carnegie (NEMA) 3									
1997	1,140	714	78	250	1988	368	212	3.2	8.6					
1998	489	350	37	71	1990	355	255	3.2	9.0					
1999	380	259	16	49	1991	1,774	203	4.4	7.9					
Carnegie (NEMA) 4														
1982	360	(C)	4.5	58	1992	363	212	3.3	8.4					
1983	375	(C)	5.9	60	1994	1,665	212	3.6	8.5					
1984	1,370	209	4.2	51	1995	368	224	3.1	6.2					
1986	300	181	8.2	30	1996	365	224	3.3	8.5					
1988	358	235	3.8	74	1997	1,379	222	3.0	8.0					
1992	383	210	5.6	78	1998	348	223	3.3	7.3					
1993	374	232	3.7	76	1999	317	221	3.5	7.9					
1994	1,371	236	4.2	77	Carnegie (NEMA) 5									
1995	371	250	4.2	72	1998	341	219	4.6	8.4					
1996	370	238	3.8	76	1999	340	228	4.3	9.1					
1997	1,379	230	3.9	77	Carnegie (NEMA) 6									
1998	349	236	3.7	71	1980	225	145	11	20					
1999	364	236	4.0	72	1986	172	—	2.6	8.1					
Carnegie (NEMA) 7										1987	149	113	5.0	9.1
1982	1,010	(C)	94	35	1993	163	124	1.7	8.9					
1983	1,120	(C)	120	42	1998	93	119	2.2	7.9					
1984	1,060	578	96	36	1999	167	115	2.3	8.1					
1988	1,040	591	97	34	Carnegie (NEMA) 8									
See footnote at end of table.										1974	200	140	3.8	13
										1975	220	144	3.4	13

Table G-1. (continued)—Selected properties of and constituents in water from industrial and municipal wells that tap the N Aquifer, 1968-99

(Source: Thomas and Truini, 2000, Table 14, p. 34-35)
($\mu\text{S}/\text{cm}$ is microsiemens per centimeter at 25C, C is degrees Celsius;
mg/L is milligrams per liter; — is no data)

Table 14. Specific conductance and concentrations of selected chemical constituents in water from industrial and municipal wells completed in the N aquifer, Black Mesa area, Arizona, 1964-99—Continued

Year	Specific conductance, field ($\mu\text{S}/\text{cm}$)	Dissolved solids, residue at 180°C (mg/L)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SO_4)	Year	Specific conductance, field ($\mu\text{S}/\text{cm}$)	Dissolved solids, residue at 180°C (mg/L)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SO_4)
Feabody—Continued					Rocky Ridge PM2				
1976	240	138	2.9	19	1986	247	164	2.4	6.4
1979	220	—	3.9	19	1998	215	140	1.4	<10
1980	230	139	4.3	13	1999	241	154	1.4	5.3
1986	205	—	4.2	12	Aangah Ridge PM2				
1987	194	135	³ 5.0	13	1983	1,090	(²)	130	110
1992	224	125	4.3	12	1984	¹ 1,100	613	130	99
1993	214	124	³ 3.0	12	1986	1,010	633	140	¹ 120
1996	214	140	3.8	12	1988	1,120	624	130	³ 110
1997	¹ 203	139	3.5	12	1991	¹ 1,210	574	130	110
1999	216	142	4.0	13	1993	1,040	614	130	110
Red Lake PM1					1994	¹ 1,070	626	130	110
1992	164	87	2.6	1.9	1995	1,110	648	140	110
1993	156	84	1.6	2.1	1996	1,100	634	130	110
1995	157	92	1.6	2.0	1997	¹ 1,060	628	130	110
1997	¹ 156	96	3.2	1.7	1998	894	637	130	110
1999	153	91	1.6	2.1	1999	1,050	630	130	110

¹Value shown in Black Mesa monitoring reports from previous years for this date is different. The earlier reports showed values determined by laboratory analysis.

²Value shown in Black Mesa monitoring reports from previous years for this date is different. The earlier reports showed values determined by the sum of constituents.

³Value shown in Black Mesa monitoring reports from previous years for this date is different. The earlier reports applied a different rounding method.

**COMMENTS ON PEABODY ENERGY
CORPORATION'S BLACK MESA
COAL MINE APPLICATION,
SUBMITTED TO THE OFFICE
OF SURFACE MINING,
APRIL 29, 2002**



**BLACK MESA TRUST
P.O. BOX 33
KYKOTSMOVI, AZ 86039**

April 26, 2002

Mr. Jerry D. Gavette
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

Mr. Gavette,

The Black Mesa Trust ("BMT") submits the enclosed comments and objections to the January 17, 2002 Peabody Western Coal Company request to the Office of Surface Mining ("OSM") to lift the administrative delay on the Permanent Program Permit or life-of-the-mine permit for the Black Mesa Mine and for approval of Peabody's request to incorporate the mining sequence for the J-23 coal reserve area in the BM2P3 application. Our comments and objections are submitted pursuant to 30 C.F.R. § 773.6(b) and we request that OSM consider these comments and objections and the attached exhibits when determining whether to issue the permit.

The Black Mesa Trust is a non-profit, tax-exempt educational and public advocacy organization headquartered on the Hopi Reservation. Many of the members of the Board of Directors of the Black Mesa Trust live on the Hopi Reservation. The Black Mesa Trust develops traditional and non-traditional teaching and learning opportunities to help Hopi and Navajo people understand issues and findings which bear on the well-being of the N-Aquifer, as well as steps they can take to protect this critical resource and preserve those aspects of Hopi and Navajo life that depend upon it.

The enclosed comments focus on the standard of proof that OSM must use and the findings OSM must make with respect to all requirements imposed by the Surface Mine Control and Reclamation Act (SMCRA) and OSM's regulations before approving Peabody's request. Additional comments and objections that focus on the hydrological, endangered species and cultural impacts of Peabody's proposal and request, and on the public participation and bonding requirements under the National Environmental Policy Act (NEPA), SMCRA and OSM's regulations are being submitted under separate cover by the Natural Resources Defense Council (NRDC), The Lawyers' Committee for Civil Rights under Law ("Lawyers' Committee"), including comments and objections submitted by the Washington, D.C. office of the firm of Shearman & Sterling, and the Sierra Club, including comments and objections from Mr. Howard M. Shanker of the Phoenix law firm of Hagens Berman & Mitchell. We hereby incorporate by

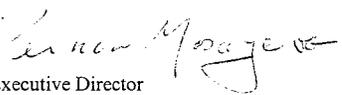


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reference into BMT's comments and objections all of the above referenced comments and objections, including all of the exhibits attached to each of those comments and objections. In addition, we request and expect that OSM will also consider the materials referenced by our comments and by the comments of, NRDC, Lawyers' Committee and the Sierra Club which, although not attached as exhibits, are materials publicly available.

Thank you for the opportunity to provide written comments. We submit them for inclusion in the record being developed by OSM. Please do not hesitate to contact me if you have any questions or if we can provide any further assistance in this matter. I can be reached at (202) 662-8600.

Vernon Masayesva


Executive Director
Black Mesa Trust

cc:

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BEFORE APPROVING PEABODY'S APPLICATION, OSM MUST FIND THAT THE APPLICATION AFFIRMATIVELY DEMONSTRATES BY CLEAR AND CONVINCING EVIDENCE THAT IT COMPLIES WITH ALL OF OSM'S REGULATIONS.

Both the Surface Mine Control and Reclamation Act, 30 U.S.C., Sec. 1201, et. seq. (SMCRA) and the regulations promulgated by the Office of Surface Mine Reclamation Enforcement (OSMRE or OSM) clearly place the burden of proof on the permit applicant to show that its permit application complies with all of the agency's regulations, including rules governing mine operations, reclamation, bonding, and minimizing and preventing disturbance of and adverse impacts on various aspects of the environment, including, but not limited to, fish, wildlife and hydrological balance. 30 U.S.C. Sec. 1260(b) (requiring that the application "affirmatively demonstrate" compliance); 30 C.F.R. Sec. 773.7(b). SMCRA also requires that OSM, before approving an application, make written findings that the application complies with the regulatory program. 30 U.S.C. Secs. 1260(b)(1) and (2).

Neither SMCRA nor OSM regulations specify the standard of proof an applicant must meet and the corresponding finding OSM must make before an application is approved. In this proceeding, the appropriate standard of proof derives from the unusual interest of the Hopi and Navajo Indians in preserving their natural and cultural resources, and the strong interest of the federal government in fulfilling its fiduciary duty to protect those resources. In light of these unusually important interests, OSM must reject a "preponderance of the evidence" standard in favor of a "clear and convincing proof" standard in evaluating Peabody's application. Accordingly, it is BMT's position that before approving Peabody's application, OSM, as a matter of law, must find that the application affirmatively demonstrates by clear and convincing evidence that its proposed mine operations, reclamation plan and bond comply with the agency's regulations.

A. A "CLEAR AND CONVINCING" STANDARD OF PROOF MUST BE APPLIED IN ADMINISTRATIVE PROCEEDINGS WHERE UNUSUALLY IMPORTANT INTERESTS ARE AT STAKE.

The appropriate standard of proof in any particular administrative proceeding is determined by first looking to see if Congress intended to impose a particular standard in the agency's enabling legislation; if not, then the preponderance of the evidence standard is ordinarily applied, as provided by the Administrative Procedures Act (APA), 5 U.S.C. Sec. 556(d). *Steadman v. Securities and Exchange Commission*, 450 U.S. 91 (1981). Where Congress has failed to establish the degree of proof required in a particular administrative proceeding, the agency must decide what standard to use, and that determination involves a question of law

that, ultimately, is appropriately decided by the courts. *Herman & MacLean v. Huddleston*, 459 U.S. 375 (1983); *Steadman, supra* at 95; *Woodby v. INS*, 385 U.S. 276, 284 (1966).

In most civil and administrative cases courts apply a preponderance of the evidence standard. By this standard proof is often said to be "more probably true than not true." Graham, *Handbook of Federal Evidence*, Sec. 301.5 (4th ed. 1996). Some judges have offered the view that a preponderance standard translates into a 50+ % probability. *United States v. Shonubi*, 895 F. Supp. 460, 471 (E.D. N.Y. 1995). However articulated, the preponderance standard allows for considerable inexactitude. Therefore, where particularly important interests are at stake, courts apply a "clear and convincing evidence" standard of proof. *Addington v. Texas*, 441 U.S. 418, 423-24 (1979); Davis, *Administrative Law*, Sec. 10.7 at 172, citing *Bender v. Clark*, 744 F.2d 1424, 1429 (10th Cir. 1984). "Clear and convincing" has been defined as a "firm conviction of the truth on the evidence about which he or she is certain." *United States v. Montague*, 40 F.3d 1251, 1255 (D.C. Cir. 1994). Others have expressed the standard as producing in the mind of the fact finder a "firm belief or conviction". Fishman, *Jones on Evidence*, Sec. 3:10 (7th ed. 1992). Black's Law Dictionary defines the standard simply as "proof that results in reasonable certainty of truth".

A "clear and convincing evidence" standard or some variant thereof is applied in cases involving a deprivation of liberty by civil commitment, *Addington v. Texas, supra.*, and in libel cases, where a person's right to speak freely is at risk. *Rosenbloom v. Metromedia*, 403 U.S. 29, 52 (1971). Where a person's citizenship is at stake, or where he faces deportation, the clear and convincing standard is appropriate. *Nowak v. United States*, 356 U.S. 660 (1958); *Woodby v. INS*, 385 U.S. 276 (1966). A potential loss of livelihood has also been recognized as an interest justifying the application of a clear and convincing standard. So, for example, where the Federal Communications Commission seeks to revoke an operator's license the interest implicated was viewed as tantamount to a loss of livelihood, thus justifying application of a clear and convincing standard of proof. *Sea Island Broadcasting Corp. v. FCC*, 627 F.2d 240, 244 (D.C. Cir. 1980).

Neither the SMCRA nor the APA imposes a standard of proof in OSM permit review determinations. The SMCRA merely states that the burden of proof is on the permit applicant to show that the application complies with OSM's regulations. 30 U.S.C. Sec. 1260. Nor does the legislative history of the SMCRA burden of proof provision reflect Congressional intent to impose any particular standard of proof. The APA's standard of proof provision is simply inapplicable to any informal proceeding associated with Peabody's mine permit application. See *Bender v. Clark*,

supra at 1429 (APA standard of proof provision, 5 U.S.C. Sec. 556, does not apply to DOI informal hearing to consider mineral lease); 4 Admin. Law, Sec. 24.03 (Matthew Bender & Co., Inc. 2001).

In deciding whether to approve Peabody's mine application OSM, as a matter of law, must use a "clear and convincing" standard because the Hopi and Navajo people living on and around Black Mesa and the government both have an unusually important interest in protecting Indian natural and cultural resources.

B. AS A MATTER OF LAW, OSM MUST USE A "CLEAR AND CONVINCING" STANDARD TO EVALUATE PEABODY'S APPLICATION BECAUSE THE HOPI AND NAVAJO PEOPLE LIVING ON AND AROUND BLACK MESA, AND THE FEDERAL GOVERNMENT BOTH HAVE AN UNUSUALLY IMPORTANT INTEREST IN PROTECTING THE INDIANS' NATURAL AND CULTURAL RESOURCES.

Two interrelated interests, by themselves and together, demand that OSM apply a clear and convincing standard of proof to Peabody's Black Mesa mine application: the interest that the Hopi and Navajo Indians have in the preservation of their natural and cultural resources on and around Black Mesa, and the government's interest in fulfilling its fiduciary duty to protect those resources.

1. The Indian People Living On and Around Black Mesa have an Unusually Important Interest in Protecting their Natural and Cultural Resources.

It is beyond dispute that for centuries the land and water of Black Mesa have been central to the culture and religion as well as the livelihood of the Indian people living there. In the Hopi view of life, for example, the land and water, the crops they yield, in particular, corn, and indeed all the plants, animals and people of the high desert, are interdependent and exist in a delicate natural and spiritual balance. For thousands of years the Hopi people have believed that the earth itself is alive; that water is the earth's lifeblood, and that life on earth comes from and returns to the water. And, for thousands of years, they have lived life according to this belief. The pristine water of the Navajo Aquifer is not only used by Navajo and Hopi people to drink and bathe, it is used by the Hopi to water corn, which is an important source of spiritual as well as physical sustenance, and an important part of their religious ceremonies such as blessing sacred Kachinas and naming a newborn child. (See the comments submitted by the Sierra Club on Cultural Impacts for a more detailed discussion.)

As important as water is to the Hopi and Navajo people, it is scarce in the high desert of the Colorado Plateau; annual rainfall in most places is less than 12 inches; year round running water is seldom seen (although it was seen in the past more than it is now). See *Drawdown*, Endnotes 77, 144 and 145. Indeed, the pristine water of the Navajo Aquifer is the only source of drinking water in the vast expanse of Black Mesa and surrounding areas. The scarcity and unique importance of water in the desert southwest are recognized by OSM's regulations, which make special provision for the regulation of surface coal mining in the "arid and semiarid areas", including Arizona. 30 C.F.R. Sec. 701.5. Also see *Environmental Regulation of Coal Mining: SMCRA's Second Decade* (ELI 1991) at 160.

In the Hopi view of life, the land, the plants, the animals, indeed the sky and the clouds, even Black Mesa itself, are all intertwined, and all have great cultural and spiritual meaning. This truth, together with the fact that in the desert, water, the wellspring of all life, is so scarce, make the preservation of Indian natural and cultural resources on and around Black Mesa a matter of extraordinary importance. The interest that the Indians of Black Mesa have in protecting their environment is not only a matter of livelihood -- although it is surely that -- it is a matter of protecting a way of life and spiritual well being that they have held for thousands of years.

No less than the revocation of a broadcaster's license, as was at issue in *Sea Island Broadcasting Corp. v. FCC, supra*, depletion and contamination of water and other natural and cultural resources that have been central to the Hopi and Navajo way of life for centuries implicates an interest that requires use of a "clear and convincing" standard of proof. This is an interest, to use the words of some courts, that is unusually or particularly important, and as such, it requires OSM to evaluate Peabody's application by a "clear and convincing" standard rather than a "preponderance of evidence" standard. This is especially true when the interest of the Hopi and Navajo in protecting their natural and cultural resources is considered together with the federal government's interest in fulfilling its fiduciary responsibility to protect those resources.

2. The Federal Government has an Unusually Important Interest in Protecting Indian Natural and Cultural Resources Because it has a Fiduciary Duty to Protect such Resources.

a. Where the Federal Government Exercises Control over the Regulation of Activities Affecting Indian Natural and Cultural Resources, it has a Specific Fiduciary Duty to Protect Such Resources.

For nearly two centuries the United States Supreme Court has recognized that the federal government owes a special duty to Native Americans: a trust responsibility to protect their interests and ensure their welfare. *Morton v. Ruiz*, 415 U.S. 199 (1974); *Minnesota v. United States*, 305 U.S. 382, 386 (1939); *United States v. Shoshone Tribe*, 304 U.S. 111, 117-118 (1938); *United States v. Candelaria*, 271 U.S. 432, 442 (1926); *McKay v. Kalyton*, 204 U.S. 458, 469 (1907); *Minnesota v. Hitchcock*, 185 U.S. 373, 396 (1902); *United States v. Kagama*, 118 U.S. 375, 382-384 (1886); *Cherokee Nation v. Georgia*, 5 Pet. 1, 17 (1831). The Supreme Court has applied this trust responsibility to hold that where the federal government exercises control over the use of natural resources on tribal lands, the government has a specific fiduciary duty to protect the interests of Indian people. *United States v. Mitchell*, 463 U.S. 206, 225 (1983) (*Mitchell II*). This fiduciary responsibility exists even when the government exercises only some control over the management of Indian resources. *Shoshone v. United States*, 51 Fed. Cl. 60, 69 (2001) (citing to *United States v. Mitchell*, 445 U.S. 535, 63 L. Ed. 2d 607, 100 S. Ct. 1349 (1980) (*Mitchell I*) and 463 U.S. 206 (1983) (*Mitchell II*); *Navajo Nation v. United States*, 263 F.3d 1325, 1329 (Fed. Cir. 2001); *White Mountain Apache Tribe v. United States*, 249 F. 3d 1364, 1377 (Fed. Cir. 2001); *Brown v. United States*, 86 F.3d 1554 (Ct. Cl.1996).

In *Mitchell II*, the Quinault Tribe sought money damages from the United States for breach of fiduciary duty in connection with the government's management of the Tribe's forest resources. These resources were managed by the Department of Interior, which, based upon federal statutes and regulations, "exercise[d] comprehensive control over the harvesting of Indian timber." *Mitchell II, supra* at 463 U.S. 209. Because the federal government assumed elaborate control over property belonging to Indians, the Court held, it owed them a fiduciary duty to manage their resources in their best interest. *Id.* at 225. Justice Thurgood Marshall explained further:

[Where] the Federal Government takes on or has control or supervision over tribal monies or properties, the fiduciary relationship normally exists with respect to such monies or properties (unless Congress has provided otherwise) *even though nothing is said expressly in the authorizing or underlying statute (or other fundamental document) about a trust fund, or trust or fiduciary connection.*" *Id.* (emphasis added).

The *Mitchell II* Court went on to hold that for a breach of this fiduciary duty the Quinault Indians had a cause of action for damages against the government. Other courts as well have held the government liable for failing to properly manage a reservation's oil and gas or mineral resources, much as the Interior Department has done with the Black Mesa and Kayenta mines. *Pawnee v. United States*, 830 F.2d 187 (Fed. Cir. 1987); *Jicarilla Apache Tribe v. Supron Energy Corp.*, 782 F.2d 855 (10th Cir. 1986). And, the federal government's fiduciary duty has been found applicable to water rights as well. See *Pyramid Lake Paiute Tribe v. Morton*, 354 F.Supp. 252 (D.D.C. 1972).

In *Pyramid Lake*, as NRDC explains in its *Drawdown* publication, the U.S. District Court for the District of Columbia in enjoined the diversion of water from a lake which was located on the Paiute reservation in Utah, by an upstream dam. The Paiute Indians historically had used the lake for fishing. The diversions had diminished the value of the lake by raising the salinity and preventing fish from returning there to spawn; yet, rather than protect the tribe's historical interests, the Secretary of Interior tried to achieve an "accommodation" between the tribe and the federal agency that constructed and operated the dam. *Pyramid Lake Paiute Tribe v. Morton*, *supra* at 257. According to the court, the secretary's actions must be held to a high bar: "The United States, acting through the Secretary of the Interior, has charged itself with moral obligations of the highest responsibility and trust. Its conduct...should therefore be judged by the most exacting fiduciary standards." *Id.*

The continuing vitality of the *Pyramid Lake* and *Mitchell II* decisions is reflected in a recent case involving Peabody's coal mining operations at the Kayenta mine on the Navajo Reservation. Just last year the Federal Circuit Court of Appeals, relying on the Supreme Court's decision in *Mitchell II*, held that "[w]hen the United States controls the Indian resources, the duty is that of a fiduciary; when the Indians control their own resources, the duty of the United States is lessened appropriately." *Navajo Nation v. United States*, 263 F.3d 1325, 1329 (Fed. Cir. 2001). Because the United States exercised pervasive control and supervision of the tribe's mineral leasing activities, it was held to have had a fiduciary duty to

maximize the benefit to the tribe through those mineral leasing activities. The Court further held that the Navajos had a cause of action for damages against the federal government for violation of its fiduciary duty. Thus, where the federal government exercises control over the regulation of surface coal mining activities on Indian lands, as it does on Navajo and Hopi lands, it owes the Indian people a fiduciary duty of the highest order to protect their natural and cultural resources.

b. The Federal Government Exerts Comprehensive and Exclusive Control Over the Regulation of Surface Coal Mining Activities on Indian Lands.

The SMCRA and the regulations promulgated under it establish a comprehensive scheme for the regulation of surface coal mining on Indian lands. The broad scope of this control is reflected in Congressional findings concerning the need for surface coal mining regulation and SMCRA's statement of purpose. See 30 U.S.C. Secs. 1201 and 1202. In passing SMCRA Congress found, among other things, that surface coal mining operations adversely affect "the public welfare . . . by destroying fish and wildlife habitats, by impairing natural beauty, . . . by creating hazards dangerous to life and property, by degrading the quality of life in local communities, and by counteracting governmental programs and efforts to conserve soil, water and other natural resources." 30 U.S.C. Sec. 1201(c). Congress also found that surface coal mining should be conducted in an environmentally sound manner, and that the Act is necessary to prevent adverse environmental effects of surface coal mining operations. 30 U.S.C. Sec. 1201(j) and (k).

Significantly, these findings are not limited to the effects of coal mining on discrete resources, but extend to the adverse effects surface coal mining operations have on the overall "public welfare" and "quality of life" of communities. See 30 U.S.C. Sec. 1201(c). Accordingly, one of the fundamental purposes of SMCRA's regulatory scheme is to protect "society" as well as the environment from the adverse effects of surface coal mining operations. 30 U.S.C. Sec. 1202. [Emphasis added.]. Clearly, the idea of "society" embraces more than physical resources; it involves an organized group of people associated together for reasons that are cultural and religious as well as political, scientific, economic and patriotic. See *Random House Dictionary* (Rev. ed. 1980). Webster's Dictionary defines "society" as "[t]he totality of social relationships among human beings", and as "[a] group of human beings broadly distinguished from other groups by mutual interests, participation in characteristic relationships, shared institutions and a common culture." *Webster's II New Riverside University Dictionary* (1988)

By enumerating a wide array of potential environmental impacts, and by speaking broadly in terms of "society", "public welfare" and "quality of life",

Congress clearly implies its intent that the protection afforded by SMCRA not be limited to discrete natural resources, but should extend to the environment as a whole and to the cultural and religious life of a community as it is affected by adverse impacts on the environment.

To fulfill SMCRA's objectives OSM has adopted detailed regulations requiring surface coal mine permit applicants to show that the operator will minimize adverse impacts on the environment at the mine-site and in associated offsite areas, and prevent material damage altogether to the hydrologic balance outside the permit area. 30 U.S.C. Sec. 1265(b)(10); 30 C.F.R. Secs. 780.21(h); 816.41(a). OSM's regulations also recognize a heightened interest in the water resources in the desert southwest because water is relatively scarce in that region. See 30 C.F.R. Sec. 701.5 (providing special definition for "arid and semiarid areas"); Also see *Environmental Regulation of Coal Mining: SMCRA's Second Decade* (ELI 1991) at 160.

Reflecting Congressional concern with protecting the "society" of affected communities, OSM has affirmed its commitment to protecting not only Indian natural resources, but cultural resources and religious freedom as well. On May 22, 1989, OSM adopted a final rule at 30 C.F.R. Sec. 750.12(d)(2)(v) which deleted the reference to the American Indian Religious Freedom Act, 42 U.S.C. Sec. 1996 (AIRFA) as a specific permit application information requirement, but assured tribes that "[t]he rule change does not eliminate the need for AIRFA compliance for surface coal mining operations on Indian lands." 54 Fed. Reg. 22182. OSM explained that "[t]he rule change merely reflects the fact that OSMRE, rather than the applicant, is ultimately responsible for ensuring AIRFA compliance on Indian lands." OSM made clear that the rule through which the agency ensures compliance with the AIRFA, 30 C.F.R. Sec. 750.6(a)(4), "is *broad in scope*, providing for protection of all non-coal resources on Indian lands without exception, including Native American religious sites and resources." *Id.* [Emphasis added.] Thus, OSM affirmed its intent and obligation to protect all Native American cultural and religious sites and resources without exception, as has Congress by its enactment of AIRFA. in 1978, and as has the President by promulgation of Executive Order 13007 in 1996. See "*Drawdown*", Note 141, citing 61 Fed. Reg. 26771.

For years the federal government, through OSM and other agencies, has asserted exclusive regulatory authority over surface coal mining on Indian lands. 53 Fed. Reg. 22182 (1989). In asserting such exclusive authority, OSM rejected the comment that such authority violates tribal sovereignty. *Id.* In its response to tribal

comments, OSM claimed that it "is, and will remain, the sole regulatory authority of surface coal mining operations on Indian lands in Arizona and New Mexico." Current regulations reflect no change in OSM's exclusive jurisdiction over the regulation of surface coal mining on Indian lands. See 30 C.F.R. Sec. 750.6(a)(1).

The control that OSM exercises over Indian resources under SMCRA is as great if not greater than the control exercised by the Secretary of the Interior over Indian timber resources in the *Mitchell II* case. It extends well beyond that exercised by the Bureau of Indian Affairs as lease administrator in *Brown, supra*. Under the authority of those decisions as well as the *Navajo Nation* case, therefore, OSM must exercise the high degree of care that a trustee must use when managing trust assets for a beneficiary. See *Mitchell II, supra*.

OSM has expressly acknowledged its fiduciary responsibility to protect Indian resources. In a Directive issued on March 28, 1996, OSM describes in great detail its trust responsibility. See *Dept. of Interior, Office of Surface Mining Reclamation and Enforcement Directive System*, 18 Reg. 1 (March 28, 1996), attached as Exhibit A. The document recognizes "the Federal trust responsibility [a]s a legal obligation under which the United States 'has charged itself with moral obligations of the highest responsibility and trust'". *Id.* at 2, quoting the United States Supreme Court decision in *Seminole Nation v. United States, supra*. "At a minimum," the document goes on to say, "it is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, as well as a duty to carry out the mandates of Federal law with respect to American Indians and Alaska Native tribes." *Id.* at 2. "As the regulatory authority for surface coal mining and reclamation operations located on Indian lands and as a Federal agency of the Department of the Interior," OSM acknowledges its responsibility to "ensure that the lands and trust resources of federally recognized Indian tribes and their members that may be affected by agency administrative and regulatory actions are identified, conserved and protected." *Id.* at 3.

The federal government's acknowledgment of its fiduciary duty to protect Indian resources within the context of surface coal mining on Indian lands is also reflected specifically in the original coal mining lease with Peabody. There, former Interior Secretary, Stewart Udall, inserted a provision in the lease that authorized future Secretaries to end groundwater mining should it be determined "at any time" that Peabody's pumping "is endangering the supply of underground water". See "*Drawdown*", p. 21.

With exclusive authority to regulate surface coal mining activities on Indian lands, OSM can not deny or neglect its fiduciary duty to protect the natural and cultural resources of the Hopi and Navajo people living on and near Black Mesa. Fulfillment of this special fiduciary duty to the Hopi and Navajo people is itself an interest that is particularly or unusually important and thus compels the use of a "clear and convincing evidence" standard.

c. To Fulfill its Fiduciary Duty OSM Must Apply a "Clear and Convincing Standard of Proof.

The United States Supreme Court, in the case of *In re Winship*, 397 U.S. 358, 370 (1970), observed that "[t]he purpose of a standard of proof is to instruct the fact finder concerning the degree of confidence our society thinks he should have in the correctness of factual conclusions for a particular type of adjudication." Although this administrative proceeding, strictly speaking, is not an adjudication, but more in the nature of a licensing proceeding, the fundamental principle articulated by the Supreme Court should inform OSM's decision about the standard of proof it should apply. If a standard of proof reflects the level of confidence our society places in the correctness of a governmental decision, as the Supreme Court observed in *In re Winship*, then the standard of proof OSM must adopt in deciding whether to approve a mine operation that will affect the natural and cultural resources of Indian people should be an exacting one.

A "clear and convincing" standard, although imperfect, is more commensurate with the federal government's highest fiduciary duty to protect Indian natural and cultural resources than is the preponderance standard. Such a standard is consistent with what some scholars refer to as the "precautionary principle": a fundamental rule to ensure "that a substance or activity posing a threat to the environment is prevented from adversely affecting the environment, even if there is no conclusive scientific proof linking that particular substance or activity to environmental damage". See *Drawdown*, at 17, quoting James Cameron and Julie Abouchar, "The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment," *Boston College International and Comparative Law Review* 14 (1995): p. 2. A preponderance of the evidence standard leaves open too great a risk that trust resources will be irreparably harmed or squandered. A 49% chance that Peabody's mine operations will not minimize harm to the hydrologic balance at Black Mesa, for example, is too great a risk with which to leave the Hopi and Navajo people, to whom such a high duty of care is owed.

CONCLUSION

The Hopi and Navajo people have an unusually strong interest in the protection of their natural and cultural resources because those resources have sustained not only a livelihood but a way of life, including a religion, for thousands of years. This, Peabody does not and cannot dispute. The federal government also has an extraordinary interest in the protection of Indian natural and cultural resources because it has undertaken the highest fiduciary duty to do so. Each of these interests, by themselves, but especially together, compel OSM to apply a "clear and convincing" standard of proof to a review of Peabody's application. No lesser standard would adequately protect Hopi and Navajo interests, and allow the federal government to fulfill its fiduciary duty. Indeed, use of a lesser standard would violate the federal government's fiduciary duty to protect the natural and cultural resources of the Hopi and Navajo people. Accordingly, before OSM approves Peabody's request and application, it must find that Peabody has affirmatively demonstrated by clear and convincing evidence that Peabody's application complies with all of OSM regulations.

	U.S. DEPARTMENT OF THE INTERIOR	Subject Number: REG-18
	OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT DIRECTIVES SYSTEM	Transmittal Number:
		Date: MAR 28 1996
Subject: Protection of Indian Lands and Indian Trust Resources		
Approval: <i>[Signature]</i>	Title:	Director
<p>1. PURPOSE. This directive sets forth Office of Surface Mining Reclamation and Enforcement (OSM) policies and procedures for ensuring that Indian lands and trust resources that may be directly or indirectly affected by surface coal mining and reclamation operations, or by abandoned mine land reclamation, are identified, conserved, and protected. It also provides policy and procedural guidance to ensure that OSM operates within a government-to-government relationship with federally recognized Indian tribes.</p> <p>2. SUMMARY. This directive provides policy and procedural guidance to ensure that OSM identifies, conserves, and protects Indian lands and trust resources during the planning and implementation of Title IV abandoned mine lands (AML) reclamation and Title V regulatory programs, projects, and activities. It also specifies the nature and extent of consultation and coordination that should be initiated by OSM employees when dealing with federally recognized Indian tribes to ensure that OSM fulfills its obligation to operate within a government-to-government relationship with such tribes. The issuance of this directive implements the requirements contained in Chapter 2, Part 512 of the Department of the Interior Manual entitled "Departmental Responsibilities for Indian Trust Resources".</p> <p>This directive is meant to serve as a reference and resource document for OSM employees to ensure that they are fully aware of the existence and scope of applicable OSM policies and procedures in the performance of their assigned administrative and regulatory duties that may affect Indian lands and trust resources. The directive accomplishes this primarily by augmenting OSM's existing regulations, policies and procedures specifically applicable to Title IV and Title V activities involving such lands and resources with supplemental guidance not currently specified elsewhere in agency guidance documents.</p> <p>This directive is intended only to improve the internal management of OSM and is not intended to and does not create any right to administrative or judicial review, or any other right or benefit or trust responsibility, substantive or procedural, enforceable by a party against the United States, OSM, its officers or employees, or any other person.</p>		

OSM/103

1122/86

3. **DEFINITIONS.**

a. **Abandoned Mine Reclamation Fund.** A special fund established for the purpose of accumulating revenues designated for reclamation of abandoned mine lands and other activities authorized by Title IV of the Surface Mining Control and Reclamation Act (SMCRA). Refer also to 30 CFR Subchapter R.

b. **Allotted Lands or Individual Allotments.** Former tribally reserved or publicly withdrawn lands held in trust by the United States for individual tribal members, sometimes referred to as "allottees".

c. **Federal Permit.** A permit issued by OSM under SMCRA in its capacity as the regulatory authority on Indian lands as defined at Section 701(9) of SMCRA.

d. **Federal Permitting Entity (FPE).** The OSM organizational unit with responsibility for receiving and processing permit applications and other materials related to Federal permits. For Indian lands, the FPE is OSM's Western Regional Coordinating Center in Denver.

e. **Indian Lands.** All lands, including mineral interests, within the exterior boundaries of any Federal Indian reservation, notwithstanding the issuance of any patent, and including rights-of-way, and all lands including mineral interests held in trust for or supervised by an Indian tribe. Section 701(9) of SMCRA. (Also see definition of "Indian lands" at 30 CFR 700.5).

f. **Indian Tribe.** Any Indian tribe, band, group, or community having a governing body recognized by the Secretary [of the Interior]. (Section 701(10) of SMCRA)

g. **Permit Application.** The documents and other information filed with the regulatory authority under 30 CFR Chapter VII for the issuance of a permit to conduct surface coal mining and reclamation operations.

i. **Tribal Fee Lands.** All lands where the surface and/or mineral interests are owned in fee simple by an Indian tribe but not held in trust for the tribe by the United States Government.

j. **Tribal Trust Lands.** All lands where the surface and/or mineral interests are held in trust for an Indian tribe by the United States Government.

k. **Trust Resources.** Natural resources, land, water, minerals, funds or property, asset, or claim, including any intangible right or interest in any of the foregoing, which is held by the United States in trust for any Indian tribe or Indian individual subject to a restriction on alienation imposed by the United States (25 CFR 272.2(r)).

4. POLICY/PROCEDURES.

a. Policy. The Federal trust responsibility is a legal obligation under which the United States "has charged itself with moral obligations of the highest responsibility and trust" toward Indian tribes (*Seminole Nation v. United States*, 1942). At a minimum, it is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, as well as a duty to carry out the mandates of Federal law with respect to American Indian and Alaska Native tribes (Handbook on American Indians and Alaska Natives, Department of the Interior, 1995). OSM, as the regulatory authority for surface coal mining and reclamation operations located on Indian lands and as a Federal agency of the Department of the Interior, must ensure that the lands and trust resources of federally recognized Indian tribes and their members that may be affected by agency administrative and regulatory actions are identified, conserved and protected. In fulfilling these responsibilities, OSM must operate within a government-to-government relationship with Indian tribes.

(1) Protection of Indian Lands and Trust Resources.

OSM's Director is ultimately responsible for being aware of the impact of agency programs, projects, or actions on Indian lands and trust resources, and for issuing procedures and directives to ensure that all OSM personnel are fully aware of their responsibilities as Federal agency employees to identify, protect and conserve such lands and resources. OSM must ensure that any direct or indirect anticipated effects on Indian lands and trust resources of proposed reclamation projects or coal mining operations are explicitly addressed in the associated planning, decision and operational documents for such proposals including, but not limited to: decision documents, environmental assessments, and environmental impact statements. These documents should clearly state the rationale for the agency's recommended decision on the proposal and explain how the decision will be consistent with the Department's and OSM's responsibilities to identify, protect, and conserve trust resources and Indian lands.

OSM's Indian lands responsibilities extend to all lands within the exterior boundaries of Federal Indian reservations and to off-reservation lands including mineral interests held in trust for or supervised by a tribe, including the Crow Ceded Area in Montana. The Ceded Area is adjacent to the Crow Indian Reservation and consists primarily of tribal trust mineral overlain by non-Indian surface, except for two sections of State land per township, including one section of State land in the Absaloka Mine. Although there is no Federal trust responsibility on tribal fee lands, for purposes of SMCRA, such lands are also considered Indian lands. Other lands, such as individual allotments outside the exterior boundaries of a Federal Indian reservation, may be considered Indian lands for purposes of SMCRA regulation if there is sufficient evidence that such lands are supervised by a tribe. If such other lands are not supervised by a tribe, they are subject to State regulation in primacy States. (Also see definition of "Indian lands" at 30 CFR 700.5).

(2) Government-to-Government Relations. As required by the Presidential Memorandum of April 29, 1994 entitled "Government-to-Government Relations With Native American Tribal Governments", Federal agencies must, to the greatest extent practicable and to the extent permitted by law, consult with tribal government(s) prior to taking actions that affect federally recognized Indian tribes. Activities which affect Native American tribal rights or trust resources should be implemented in a knowledgeable, sensitive manner respectful of tribal sovereignty. Agencies are required to assess the impact of Federal government plans, projects, programs, and activities on tribal trust resources and assure that tribal government rights and concerns are considered during the development of such plans, projects, programs, and activities. The Presidential memorandum directs agencies to apply the requirements of Executive Order Nos. 12875 ("Enhancing the Intergovernmental Partnership") and 12866 ("Regulatory Planning and Review"), where appropriate, to address specific or unique needs of tribal communities. An advisory memorandum issued on February 24, 1995 by the Assistant Secretary for Indian Affairs provides supplemental guidance to assist the Department's bureaus and offices in the incorporation and implementation of the President's directive into their daily activities and decision-making processes.

OSM must assess early in the planning, development or review of proposed programs, projects, mining operations or other activities, including rulemaking actions, the potential impacts of such proposed activities on Indian lands and trust resources. OSM should avoid actions which negatively impact tribal treaty rights or trust resources. If OSM's evaluation of a proposed activity reveals any potential direct or indirect impacts on Indian lands or trust resources, OSM must consult directly with the federally recognized tribal government with jurisdiction over the Indian lands or trust resources that may be affected. If OSM's evaluation of the proposed activity reveals any potential direct or indirect impacts on tribal trust lands or trust resources, OSM must also consult with the appropriate office of the Bureau of Indian Affairs (BIA) and, if appropriate, the Office of the Solicitor. Agency consultations with tribal governments are to be open and candid so that all interested parties may evaluate for themselves the potential impact of the proposal on Indian lands and trust resources.

(3) Title IV Reclamation. OSM's Title IV responsibilities on Indian lands include administering the Federal Reclamation Program on the lands of federally recognized Indian tribes that do not have approved Indian reclamation programs (non-program Indian tribes). Under the Federal Reclamation Program, OSM performs any necessary eligible emergency and non-emergency AML reclamation on the lands of non-program Indian tribes. In addition, OSM is responsible for any emergency reclamation that might be necessary on the lands of the three program tribes (Crow, Hopi and Navajo) established under section 405(k) of SMCRA.

OSM also administers the Abandoned Mine Reclamation fund which was created pursuant to Title IV of SMCRA and is financed by a reclamation fee assessed on every ton of mined coal. The fund is divided into the Tribal/State and Federal shares with each Indian tribe or

State having a federally approved reclamation program entitled to 50 percent of the reclamation fees collected from coal operations within the Indian lands or State. Forty percent of the Federal share of the fund is also allocated to the Tribes/States. The three program tribes receive annual reclamation grants from the Abandoned Mine Reclamation Fund subject to appropriation by Congress.

The Crow, Hopi and Navajo Tribes have exclusive authority under their approved reclamation programs to abate hazards to public health and safety and the environment by reclaiming abandoned coal mines on Indian lands under their jurisdiction. The three program tribes' AML reclamation authority extends to all lands within their respective federal Indian reservation boundaries, tribal fee lands, and any other off-reservation lands where such lands including mineral rights are held in trust for or supervised by the program tribe.

The tribes can also use Tribal share monies to reclaim abandoned noncoal mine sites if the request is made by the Tribal head and the project represents an extreme danger to public health, safety, general welfare or property. Further, once a program tribe certifies that it has addressed the reclamation of all eligible abandoned coal mine projects and OSM's Director or designee concurs, the tribe can then use the full amount of its Tribal share for abandoned noncoal mine land reclamation projects.

OSM conducts oversight of the Crow, Hopi and Navajo Tribe's approved Indian reclamation programs by evaluating the implementation of such programs in the context of Title IV of SMCRA and the implementing regulations at 30 CFR Part 870 *et seq.*, the tribes' respective federally approved reclamation plans, and the Abandoned Mine Land Final Guidelines published in the Federal Register on March 6, 1980 (45 FR 14810). OSM assists the tribes with the implementation of their approved programs as requested by the tribes.

(4) Title V Regulation. SMCRA provides a comprehensive scheme for the regulation of coal mining and the surface effects of underground mining and provides for the assumption of regulatory responsibility (primacy) by States for non-Federal and non-Indian lands within a State when regulatory programs are adopted meeting statutorily established criteria. However, SMCRA does not contain provisions allowing the tribes to assume primacy. In 1984, the Secretary of the Interior reported to Congress on the findings from a study of regulation on Indian lands. Regulations were published that same year giving the Secretary exclusive authority to regulate surface coal mining and reclamation operations on Indian lands until such time as legislation is passed by Congress enabling the tribes to assume primacy.

The Energy Policy Act of 1992 amended SMCRA to add a new section 710(i) which provides that the Secretary shall make grants to the Crow, Hopi, Navajo, and Northern Cheyenne Tribes to assist them in developing regulations and programs for regulating surface coal mining and reclamation operations on Indian lands. Consistent with the Energy Policy Act provisions, OSM plans to issue grants in FY 1996, subject to appropriations, to assist these Tribes in establishing a surface coal mining unit for each Tribe. OSM supports

development of legislation that would allow the Tribes to assume primacy and has met with Tribal representatives in a series of ongoing discussions to determine how best to develop appropriate draft legislation.

As the regulatory authority on Indian lands, OSM is responsible for ensuring that surface coal mining and reclamation operations conducted on such lands are in compliance with the applicable requirements of Title V of SMCRA and the implementing regulations at 30 CFR Chapter VII. The regulatory requirements for surface coal mining and reclamation operations on Indian lands are set forth at 30 CFR Part 750.

The Indian lands regulatory program is composed of two major program elements: permitting, and inspection and enforcement (I&E). OSM's Western Regional Coordinating Center (WRCC) is the Federal permitting entity for active surface mining operations located on Indian lands and is responsible for all permitting actions including the approval or denial of applications for new permits, the processing of permit revisions, ordered revisions, permit renewals and permit transfers, conducting midterm permit reviews, and permit issuance.

Active coal mining on Indian lands presently occurs exclusively in the western United States on Hopi and Navajo lands in the States of Arizona and New Mexico, on the Crow Ceded Area in Montana, and on Ute Mountain Ute lands in New Mexico and Colorado. In addition, a portion of a coal haul road crosses a corner of the Ute Mountain Ute Reservation in northern New Mexico. OSM regulates exclusively on Indian lands in Arizona and New Mexico.

In Montana, OSM and the Montana Department of State Lands (DSL) jointly administer the applicable regulatory requirements for surface coal mining operations located on the Crow Ceded Area pursuant to a 1985 memorandum of understanding (MOU). The MOU was entered into by the Department of the Interior, OSM and the State of Montana as part of a settlement agreement in Montana's challenge to OSM's Indian lands regulations. Specific procedures for the implementation of the permitting provisions of the MOU are set forth in a document entitled "Working Procedures for Coordination of Permitting Activities for the Absaloka Mine" that was jointly prepared and finalized by OSM and Montana DSL in August 1990.

In a letter dated June 1, 1995, the Crow Tribe requested rescission of the MOU between OSM and the State of Montana. OSM responded to the Crow Tribe in its letter of July 20, 1995. That letter indicated that the concerns expressed by the Crow Tribe warranted further consideration and examination, and OSM intended to address this matter in consultation with the Crow Tribe and the State of Montana, with input from the permittee, as appropriate. Any policy or procedural change(s) that result from this OSM consultation with the Crow Tribe and the Montana DSL will be reflected in subsequent revision(s) to this directive.

OSM's field offices and field divisions are responsible for conducting I&E activities on Indian lands mines located within the boundaries of those States that fall within the field

office or division's area of jurisdiction. Inspectors from OSM's Albuquerque, New Mexico Field Office conduct I&E activities on Indian lands in Arizona, New Mexico, and Colorado. On the Crow Ceded Area, Montana DSL has the lead responsibility for conducting inspections and initiating enforcement actions. However, inspectors from OSM's Casper, Wyoming Field Office accompany State inspectors on inspections of coal mining operations on the Crow Ceded Area and retain the authority to take enforcement action should OSM determine that the State has failed to take appropriate action concerning any violations of applicable laws, regulations, orders, approved mining and reclamation plans and permits.

b. Responsibilities.

(1) The Assistant Director, Program Support, provides national policy direction and guidance in the development and implementation of agency procedures for ensuring that OSM's Indian lands and trust responsibilities are met in relation to Title IV and Title V programs, projects and activities that involve or may affect Indian lands and trust resources, and that OSM operates within a government-to-government relationship with federally recognized Indian tribes.

(2) The Regional Directors for the Appalachian, Western, and Mid-Continent Regional Coordinating Centers are responsible for ensuring that the applicable agency procedures are implemented by their respective employees in the performance of their Title IV responsibilities for non-program Indian tribes and, as applicable, their Title V permitting activities involving Indian lands and trust resources.

(3) The Field Office Directors (FOD) and Field Division staff are responsible for ensuring that the applicable agency procedures are implemented by field office personnel in the performance of their Title IV responsibilities for grant administration and oversight of approved Indian reclamation programs and their Title V inspection and enforcement activities involving Indian lands and trust resources.

c. Title IV Procedures. This section of the directive specifies the applicable regulations and other documents that provide policy and procedural guidance related to OSM's Title IV reclamation responsibilities. OSM's procedures relating to State and Indian reclamation programs are essentially identical, as are the Federal Reclamation Program procedures on non-Indian lands and non-program tribal lands. Documents specific to the Indian reclamation programs are the approved Title IV reclamation plans for the Crow, Hopi and Navajo Tribes. The following regulations and guidance documents listed below are not necessarily specific to Indian reclamation programs or Indian lands but, instead, are generally applicable to Title IV AML reclamation.

- 30 CFR Subchapter R - Abandoned Mine Land Reclamation
- Abandoned Mine Land Final Guidelines (45 FR 14810; March 6, 1980)

- Applicable directives contained in the AML, GMT, and REG sections of OSM's Directives System.

d. Title V Procedures.

(1) Title V Procedures - Permit Application Review and Approval and Inspection and Enforcement. This section of the directive specifies the applicable regulations and other documents that provide policy and procedural guidance for OSM's Title V permitting and inspection and enforcement responsibilities that may affect Indian lands and/or trust resources. Regulatory requirements specific to the Indian lands are found at 30 CFR Subchapter E - Indian Lands Program. The following regulations and guidance documents are generally applicable to OSM's Title V permitting and inspection and enforcement activities and are not necessarily specific to Indian lands.

- 30 CFR Subchapter B - Initial Program Regulations
- 30 CFR Subchapter F - Areas Unsuited for Mining
- 30 CFR Subchapter G - Surface Coal Mining and Reclamation Operation Permits and Coal Exploration Systems Under Regulatory Programs
- 30 CFR Subchapter J - Bonding and Insurance Requirements for Surface Coal Mining and Reclamation Operations
- 30 CFR Subchapter K - Permanent Program Performance Standards
- Subchapter L - Permanent Program Inspection and Enforcement Procedures
- Subchapter M - Training, Examination, and Certification of Blasters
- Subchapter P - Protection of Employees
- Applicable directives contained in the INE and REG sections of OSM's Directives System.

(2) Consultation and Coordination Procedures for Proposed Permitting Actions. Agency responsibilities and consultation requirements for surface coal mining and reclamation operations on Indian lands are set forth generally at 30 CFR 750.6. However, consultation requirements for proposed permitting actions may vary somewhat depending upon the land ownership status of the lands involved in a particular permitting proposal. For proposed permitting actions involving lands within Federal reservation boundaries and off-reservation tribal trust lands, OSM must consult with the affected Indian tribe and the Bureau of Indian Affairs (BIA), and as applicable, the Bureau of Land Management (BLM) and other appropriate Federal agencies. For proposed permitting actions involving tribal fee lands, OSM must consult with the tribal owner of the mineral

and/or surface estate and may consult with the BIA and BLM and other Federal agencies as appropriate.

OSM must provide the appropriate tribal government offices with copies of proposed permitting actions, submitted by applicants, for their review and comment prior to OSM taking a final action on the proposal. OSM must consider the tribe's comments in reaching its decision on the proposed permitting action. If OSM disagrees with the tribe's comments on a permitting proposal, OSM must provide the tribe with a timely written response clearly explaining the rationale for OSM's position. OSM must also provide the affected tribe with copies of all relevant correspondence relating to the permitting action, as well as copies of the Federal permit, including all revisions, for approved mining operations.

Exceptions to these consultation procedures may occur with respect to certain minor revisions when expedited review of such revisions is necessary due to unforeseen circumstances and the environmental impacts of approving such revisions would be negligible. Such situations might include relocation of topsoil stockpiles, minor realignments of existing roads, or minor modifications to existing office facilities or other structures. In such circumstances, OSM may issue a permitting decision on the proposed revision without prior consultation with the affected Indian tribe or other Federal agencies or may conduct such consultation by telephone in lieu of the normal consultation process.

For allotted lands located outside the boundaries of Federal Indian reservations that are not supervised by an Indian tribe and are thus subject to State regulation in primacy States, OSM is responsible for ensuring that the State RA consults with the appropriate BIA office concerning mining and reclamation proposals involving such lands.

(3) Consultation and Coordination Procedures for I&E Activities.

Agency I&E responsibilities and associated coordination and notification requirements for surface coal mining and reclamation operations on Indian lands are set forth at 30 CFR 750.6 and 750.18. For mining operations that involve Indian lands or trust resources, OSM must notify the affected tribe and, as applicable, BIA and BLM of scheduled mine site inspections and offer them the opportunity to accompany OSM on such inspections. OSM must also provide the affected tribe and, as applicable, BIA and BLM with copies of all inspection reports and enforcement actions. Appropriate tribal officials must also be notified of any hearings or conferences related to civil penalties involving tribal lands and be invited to attend.

For citizen complaints involving Indian lands or trust resources, the OSM field office in receipt of the complaint must provide a copy of the complaint document to the Federal permitting entity and the affected tribe and, as applicable, to the appropriate BIA office, and afford each such recipient an opportunity to comment on the issues raised in the complaint. The field office must ensure that all such copies of the complaint are edited as necessary prior to distribution to conceal the identity of the person submitting the complaint, if



April 26, 2002

NATURAL RESOURCES DEFENSE COUNCIL

Via Federal Express

Mr. Jerry D. Gavette
 Leader, Black Mesa/Kayenta Mine Team
 Office of Surface Mining
 1999 Broadway, Suite 3320
 Denver, Colorado 80202-5733

**Re: Comments on Peabody Western Coal Company J-23 Life-of-Mine
 (LOM) Mine Plan/Black Mesa Permanent Program Permit (BM2P3)
 Application: Groundwater and Fish, Wildlife & Plants**

Dear Mr. Gavette:

On behalf of the Natural Resources Defense Council ("NRDC"), Lawyer's Committee for Civil Rights Under Law ("Lawyers' Committee"), the Black Mesa Trust ("BMT"), each of BMT's directors individually, and the Sierra Club, we submit the following comments and objections on the January 17, 2002 Peabody Western Coal Company ("Peabody") request to the Office of Surface Mining ("OSM") to lift the administrative delay on the Permanent Program Permit (or life-of-the-mine permit) for the Black Mesa Mine and to approve Peabody's request to incorporate the mining sequence for the J-23 coal reserve area in the BM2P3 application (collectively, the "Mining Application").

These comments comprise one part of the comments being submitted to OSM on behalf of the organizations listed above. We incorporate by reference in this submittal those comments and objections (including exhibits and enclosures) which are also being filed under separate cover by the Black Mesa Trust, Lawyers' Committee, and the Sierra Club. Our comments and objections are submitted pursuant to 30 C.F.R. § 773.6(b), and we request that OSM consider these comments and objections when determining whether to issue the permit. In addition to the comments and the attached exhibits, we request and expect that OSM will also consider the materials referenced by our comments and by the comments of BMT, Lawyers' Committee, and the Sierra Club which, although not attached as exhibits, are publicly available.¹

¹ In some instances, we have provided relevant source materials in the enclosed document, "Exhibits to NRDC Comments." An analysis of Peabody's 1999 groundwater model ("Technical Review of 'A Three-Dimensional Flow Model of the D and N Aquifers' prepared by HIS Geotrans and Waterstone, for the Peabody Western Coal Company, September 1999") is also enclosed as a separate document.

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NRDC is a national nonprofit environmental organization that uses law, science, and the support of its more than 500,000 members nationwide to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. NRDC works to foster the fundamental right of all people to have a voice in decisions that affect their environment. It also seeks to break down the pattern of disproportionate environmental burdens borne by people of color and others who face social or economic inequities. NRDC has approximately 10,000 members in Arizona, including those who reside in Flagstaff, Tuba City, Kykotsmovi, Moencopi, and other towns in the Black Mesa area. These members have direct and significant interests in environmental and related issues raised by the Mining Application, including, but not limited to, the depletion of the sole source of drinking water on the Black Mesa Plateau: the N-Aquifer.

The Black Mesa Trust is a non-profit, tax-exempt educational and public advocacy organization headquartered on the Hopi Reservation. Many of the members of the Board of Directors of the Black Mesa Trust live on the Hopi Reservation. The Black Mesa Trust develops traditional and non-traditional teaching and learning opportunities to help Hopi and Navajo people understand issues and findings which bear on the well-being of the N-Aquifer, as well as steps they can take to protect this critical resource and preserve those aspects of Hopi and Navajo life that depend upon it.

The Sierra Club is a national nonprofit environmental organization founded in 1892. It now has more than 700,000 members. Those members include people who live on Black Mesa. Since 1992, the Sierra Club's Environmental Justice Campaign has worked in partnership with communities of color and low-income communities on local environmental, health, and justice issues. In addition to 25 field offices, the Sierra Club has an Environmental Justice Grassroots Organizing Program with six environmental justice organizers across the country.

The Lawyers' Committee for Civil Rights Under Law is a national civil rights organization formed in 1963 to involve the private bar in assuring the rights of all Americans. For thirty-nine years, the Lawyers' Committee has represented victims of discrimination in virtually all aspects of life. In 1991, the Lawyers' Committee formed its Environmental Justice Project to represent communities of color in environmental and civil rights matters. The Lawyers' Committee has partnered with the law firm of Shearman & Sterling to provide *pro bono* representation to the Black Mesa Trust for issues related to the Black Mesa Mine and the N-Aquifer.

The comments contained in this submittal address two areas of the Mining Application: (I) groundwater and the hydrologic balance and (II) fish, wildlife and plants.

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I. Groundwater—Hydrologic Balance

A. Introduction

Peabody's request to use 1.8 billion more gallons of pristine drinking water from the N-Aquifer will only exacerbate various existing "red flags" that show that the N-Aquifer is under significant stress and is suffering material damage as a result of Peabody's disturbance of the hydrologic balance. Many of these existing problems are discussed in a report entitled "*Drawdown: Groundwater Mining on Black Mesa*" ("*Drawdown*"). Published by the Natural Resources Defense Council in 2000, this peer-reviewed report also includes a study conducted by hydrogeologists at the consulting firm, Levine Fricke Recon ("LFR"). LFR has also produced two additional reports addressing impacts associated with mine-related withdrawals from the N-Aquifer. All of these reports are hereby incorporated by reference in this comment letter as if set forth in full herein (and all are enclosed as attachments to these comments).

B. Regulatory Background and Requirements

The Surface Mining Control and Reclamation Act of 1977 (hereinafter, "SMCRA"), 30 U.S.C. Section 1231, *et seq.*, sets forth requirements related to applications for permits, such as the one requested by Peabody. Implementing regulations set forth in Title 30 of the Code of Federal Regulations augment these statutory requirements. These requirements contain provisions that restrict and condition OSM's ability to issue a permit to a mining applicant.

First, a permit application "shall contain . . . a determination of the probable hydrological consequences of the mining and reclamation operations, both on and off the mine site, with respect to the hydrologic regime, quantity and quality of water in surface and ground water systems . . . and the collection of sufficient data for the mine site and surrounding areas so that an assessment can be made by the regulatory authority of the probable cumulative impacts of all anticipated mining in the area upon the hydrology of the area and particularly upon water availability." 30 U.S.C. § 1257(b)(11); see also 30 C.F.R. § 780.21.

Second, "as a minimum," coal operations shall "minimize the disturbances to the prevailing hydrologic balance at the mine-site and in associated offsite areas and to the quality and quantity of water in surface and ground water systems both during and after surface coal mining operations and during reclamation . . ." 30 C.F.R. § 1265(b)(10); see also 30 C.F.R. §§ 780.21(h); 816.41(a).

Third, and more generally, the use of best available technology currently available shall be implemented to "minimize disturbances and adverse impacts of the operation on fish, wildlife, and related environmental values, and achieve enhancement of such resources where practicable." 30 U.S.C. § 1265(b)(24).

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Fourth, SMCRA establishes that the burden of proof with regard to whether the substantive regulatory requirements have been met rests squarely on the shoulders of the applicant—here, Peabody. 30 U.S.C. § 1260(b) (application must “affirmatively demonstrate”); 30 C.F.R. § 773.7 (“The applicant for a permit or revision of a permit shall have the burden of establishing that his application is in compliance with all the requirements of the regulatory program”).

Fifth, OSM must make written findings on the basis of information in the record that, among other things, the application is “accurate and complete and that all requirements . . . have been complied with,” that an assessment of the “probable cumulative hydrologic impact of all anticipated mining in the area” has been made and that the proposed operation “has been designed to prevent material damage to hydrologic balance outside the permit area.” 30 U.S.C. §§ 1260(b)(1), 1260(b)(2).

C. Peabody is Ineligible for a Permit Because It is Currently in Violation of SMCRA Interim Program Requirements to “Minimize Disturbance to the Hydrological Balance”

Peabody is now operating its Black Mesa mine under so-called “interim” or “initial” performance regulations. 30 C.F.R. § 715. These regulations set forth specific requirements applicable to protection of ground and surface waters and protection of the hydrologic balance. *Id.* In particular, Peabody is, and has been, required to “plan and conduct coal mining and reclamation operations to minimize disturbance to the prevailing hydrologic balance in order to prevent long-term adverse change in the hydrologic balance that could result from surface coal mining and reclamation operations, both on- and off-site.” 30 C.F.R. § 715.17. Furthermore, the initial regulations stipulate that “[c]hanges in water . . . quantity, in the depth to ground water . . . shall be minimized . . .” *Id.*

Peabody has failed to comply with these regulations. It has not planned or conducted operations so as to “minimize disturbance to the prevailing hydrologic balance” nor has the company “minimized” changes in water quantity and depth to groundwater. Data collected by Peabody and by the United States Geological Survey (“USGS”) (attached hereto and discussed in the attached report, *Drawdown*) demonstrate that the hydrologic balance has clearly been “disturbed.” Moreover, Peabody itself has acknowledged that drawdown associated with its operations is readily observable and is of notable spatial extent and dimension. See *Drawdown* at 9; Peabody Probable Hydrologic Consequences Assessment (Chapter 18 of Mining Application) (sometimes referred to herein as “PHC”) (2002) at 65.

Peabody’s failure to abide by OSM regulations has at least two significant components. First, Peabody has continued to pump approximately 4,100–4,400 acre/feet of high quality drinking water for industrial use in a 273 mile coal slurry every year notwithstanding the fact that other options to transport coal exist and the water slurry

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technology is demonstrably anachronistic and inappropriate in arid regions, such as the Black Mesa plateau. *Drawdown* at 5, 31-32. Peabody itself, in a written presentation that the Company has produced regarding water issues on Black Mesa, has acknowledged that alternatives to the use of the N-Aquifer exist. Peabody Lehman Brothers Powerpoint Presentation, "Arizona Operations" (enclosed with Exhibits to NRDC Comments). By employing a slurry technology—and in particular, one that uses the only high quality source of water on Black Mesa—in an arid region, Peabody has failed to comply with 30 C.F.R. Section 715.17. Further, this approach patently fails to comply with the SMCRA mandate to use best available technology currently available to "minimize disturbances and adverse impacts of the operation on fish, wildlife, and related environmental values, and achieve enhancement of such resources where practicable." 30 U.S.C. § 1265(b)(24); *see generally* Mining Application, Chapters 15-19.

Second, even if one were to assume for the sake of argument that Peabody could employ its current slurry line, using N-Aquifer water, without such operation constituting a *per se* violation of the initial performance requirements of Part 715.17, Peabody has otherwise failed to take steps that would "minimize disturbance to the prevailing hydrologic balance" and "minimize" changes in water quantity and depth to groundwater. For example, Peabody could, but has not, altered the mixture of N-Aquifer water and coal in the slurry to reduce water needs and it continues to use large amounts (approximately 500 acre/feet per year) of N-Aquifer water for other mining-related uses. *Drawdown* at 5, 32-33; Mining Application, Chapter 16 at 37 ("Peabody operates a wellfield . . . completed in the . . . N Aquifer . . . for the coal slurry pipeline serving the Mohave Generating Station *and for other operational uses*") (emphasis added).

For these reasons, Peabody is in ongoing violation of federal regulations applicable to its operations. This violation is "unabated" and "uncorrected" pursuant to 30 C.F.R. Section 773.12 ("permit eligibility determination"). OSM must review information submitted herein regarding this unabated and uncorrected violation of SMCRA pursuant to 30 C.F.R. Section 773.11 and must further find that Peabody is ineligible for permit issuance until and unless its use of the N-Aquifer ceases. 30 C.F.R. §§ 773.12 and 773.15.

D. The Review of Probable Hydrologic Consequences in the Mining Application is Inadequate and Incomplete

In addition to Peabody's ongoing violation of OSM regulations, Peabody's Mining Application must also be denied because the information presented in the Mining Application is inadequate and incomplete. OSM regulations require all applications for new or revised permits to contain a determination of the "probable hydrologic consequences (PHC) of the proposed operation upon the . . . quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas." 30 C.F.R. § 780.21(f). Among other things, the PHC shall contain findings on "whether adverse impacts may occur to the hydrologic balance" and "whether the proposed

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operation . . . may result in . . . diminution . . . of a source of water “which is used for domestic . . . or other legitimate purpose.” *id.* at § 780.21(f)(3).

The PHC prepared by Peabody, and contained in Chapter 18 of the Mining Application, is fundamentally flawed and fails to meet these regulatory requirements. Major flaws include the following: (1) the PHC ignores or seeks to minimize empirical data demonstrating a variety of material impacts to the N-Aquifer in favor of theoretical modeling; (2) the PHC relies on a model which, on its face, is inadequate to address all relevant consequences of mining on the hydrologic balance (and associated, existing Cumulative Hydrologic Impact Assessment (“CHIA”) factors established by OSM); (3) the Peabody model is otherwise flawed in important ways that destroy its utility and credibility, including its theoretic postulation of a nearly unlimited supply of water to replace water pumped by Peabody and mask the effects of Peabody pumping; (4) the PHC fails to directly address the CHIA criteria established by OSM; (5) the PHC fails, after noting that underground sources of drinking water will be diminished, to discuss alternative sources; and (6) the PHC fails to discuss in any fashion non-quantitative impacts associated with its quantitative impacts on the N-Aquifer. Each of these points is discussed in turn.

First, the PHC fails to address data that have been collected by Peabody and the USGS that demonstrate a range of material impacts and damage to the N-Aquifer and hydrologic balance on Black Mesa. The PHC completely fails to discuss most empirical data, even though this data is part of existing monitoring programs discussed by Peabody and/or is published by the USGS. See Mining Application at Chapters 15-16. Even if Peabody disagrees that it bears significant responsibility for the impacts identified by the data, there is no basis to fail to disclose them in connection with the PHC. These impacts include drawdown of water levels in the N-Aquifer by 100 feet or more; diminishment of flow by more than 30% from seven of nine monitored N-Aquifer springs; and other strong indications of substantial reductions in flow in washes. See *Drawdown* at 6-12 (citing USGS regional monitoring reports and relying on data published therein). Moreover, Peabody’s PHC predicts massive additional drawdown, noting that for Scenario I, water levels will decline by more than 600 feet beneath the Mesa in 2023 and will not have fully recovered in 2054. Mining Application, Chapter 18 at 73.

While modeling techniques may be a permissible component of a Mining Application, the “PHC determination shall be based on baseline hydrologic, geologic and other information collected for the permit application . . .” 30 C.F.R. § 780.21(f)(1). It does not appear that baseline data have played any material role in the analysis contained in the PHC. In particular, Peabody’s own data, and data set forth in *Drawdown*, evidence a range of hydrologic balance disturbances, but these impacts are simply discounted by Peabody. This is improper. See 48 Fed. Reg. 43956 (September 26, 1983) (discussion of Section 780.21(d)).

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Second, Peabody relies heavily on a model of the N-Aquifer in order to support its claims that impacts to the N-Aquifer are minimal. Mining Application, Chapter 18 at 39 (“model”). However, Peabody admits that the model has insufficient resolution to address a critical issue: diminishment of flow at sacred and other springs in the area. *Id.* (“the models are not of sufficient resolution to simulate flow at individual springs . . .”).

The impact of Peabody’s activities on spring flow is, and has always been, a central hydrogeologic issue. For example, one of the four CHIA criteria established by OSM establishes a material damage threshold of 10% reduction in spring flow. Cumulative Hydrogeologic Impact Assessment of Peabody Coal Company Black Mesa Mine/Kayenta Mine (1989). Yet, Peabody’s model simply does not address this issue, thereby precluding OSM from assessing impacts to individual springs, many of which are integral religiously and culturally to the Hopi in addition to serving as sources of potable water. *Drawdown* at 24.

Third, the Peabody model is otherwise fatally flawed. As documented in the attached report from expert hydrogeologists and modelers with LFR, the Peabody model has numerous inconsistencies and significant problems. Chief among them, the Peabody model artificially creates a nearly limitless supply of water residing in the D Aquifer that “replaces” water pumped from the underlying N-Aquifer by the coal company for use in its operations. This element of the model fundamentally obscures impacts and minimizes Peabody’s proportional role in those that are identified. In short, as more fully discussed in the attached LFR report, the Peabody model is inadequate to support the conclusions contained in the PHC nor is it capable of supporting a finding by OSM that material damage, or other disturbances to the hydrologic balance, will not occur as a result of Peabody operations. *See* Kuhnel & Cross, A Technical Review of ‘A Three-Dimensional Flow Model of the D and N Aquifers’ prepared by HIS Geotrans and Waterstone, for the Peabody Western Coal Company, September 1999” (LFR, 2002) (submitted herewith).

It is instructive that the PHC contains significant caveats about the utility of the model. For example, Peabody acknowledges that the agreement between the model and observed water levels (alleged by Peabody) “does not necessarily mean that the predictions will be accurate.” Mining Application, Chapter 18 at 46. Peabody notes that “[e]arlier models produced reasonably good agreement with water-level change information available at the time of their calibration, but the agreement of measured and simulated water-level changes degraded with increasing time.” *Id.*

Fourth, the PHC fails to directly and meaningfully address existing standards, both administrative and regulatory. While, as discussed below, the CHIA is inadequate and in need of update, it is notable that the PHC fails to identify or relate its findings and claims to the CHIA or another objective standard or standards. For example, the PHC fails to directly address the applicable regulatory standard, which requires a finding to be made about whether “adverse impacts may occur to the hydrologic balance.” 30 C.F.R. § 780.21(f)(3). Instead, the PHC analyzes “significant” impacts (*see* PHC at 119), a point

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of reference that is not defined and that in any case fails to illuminate a range of possible adverse impacts.

Moreover, the PHC ignores the fundamental hydrology concept of “safe yield,” which essentially posits that withdrawals from an aquifer should be in balance (no greater than) annual recharge. Peabody acknowledges in its PHC that “uncertainty in recharge rates remain.” PHC at 45. Peabody further notes that the USGS (Lopes and Hoffman, 1997) most recently estimated a recharge rate for the N-Aquifer approximately one-half of previous assumptions. *Id.* (Peabody posits this reduced rate to be approximately 6500 acre feet/year.) Peabody’s seeks authority to withdrawal nearly this amount of water by itself from the N-Aquifer—5700 acre-feet/year. When Peabody’s withdrawals are added to domestic withdrawals of approximately 1500 acre-feet/year, safe yield is exceeded substantially. *Drawdown* at 16. Further, if one assumes that the recently announced Hopi Tribe-Reliant Energy coal-fired plant would use even 2000 acre-feet/year from the N-Aquifer, withdrawals from the N-Aquifer in the near-term would begin to approach the Safe Yield of the N-Aquifer even if it were twice the 6500 acre-feet/year figure that Peabody attributes to Lopes and Hoffman. This is especially true if additional withdrawals are made from the N-Aquifer by the tribes in the coming years.

In all of these respects, Peabody fails to relate its findings and claims to governing and objective hydrology standards and, accordingly, fails to provide a PHC that is legally adequate and useful to OSM and others.

Fifth, the PHC does not discuss the availability of alternative sources of water, even though it clearly acknowledges that drawdown will occur in the N-Aquifer, and the aquifer will be diminished, as a result of mining withdrawals. This violates OSM regulations. 30 C.F.R. § 780.21(e) (“if the PHC determination . . . indicates that the proposed mining operation may proximately result in . . . diminution . . . of an underground . . . source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial or other legitimate purpose, then the application shall contain information on water availability and alternative water sources”).

Sixth, nowhere does the PHC discuss the fact that the use of N-Aquifer water for coal slurry operations impacts the cultural and religious beliefs of many Hopi and Navajo on the Black Mesa plateau. While the PHC is inadequate from a purely quantitative, “standard” hydrogeologic construct (as discussed herein), there can be no doubt that the industrial extraction of billion of gallons of drinking water has serious cultural and religious implications even if, for the sake of argument, it were assumed that “standard” concepts of hydrogeology, such as safe yield, for example, were not offended. Many Hopi and others have discussed these impacts in the administrative record (*see Drawdown* at 24) related to the EIS process in the late 1980s and early 1990s. Yet, these impacts, although well-known, receive precisely no attention by Peabody. This violates OSM regulations (among other laws). *See Natural Resources Defense Council, et al. v. Office of Surface Mining Reclamation and Enforcement*, 89 IBLA 1 (1985) (noting that

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“Congress intended the assessment of impacts on hydrology to be comprehensive . . . [including] not only definite impacts or even only quantifiable ones.”)

E. Peabody’s Mining Application is Incomplete

Among its other flaws, as discussed herein, the Mining Application fails to include empirical monitoring data sufficient to fully assess the probable cumulative hydrologic impacts. 30 C.F.R. § 780.21(c). In particular, as noted above, Peabody’s PHC fails to address flows from springs. Further, monitoring data is often incomplete or of insufficient sensitivity. For example, direct data regarding water quality is lacking (*Drawdown* at 9); and information about flows in washes is complicated by the error range of monitoring equipment (*Drawdown* at 11). These problems interfere with the application of at least two of the four criteria in the CHIA.

Moreover, as a whole, the monitoring program is flawed in scope and focus. OSM itself has noted that the program “is at best an early warning system in that it is indicative rather than deterministic and is not set up to specifically address many of the criter[ia] . . . The bottom line is that . . . we need to tailor the current monitoring program in such a way as to more specifically address the above criteria and in a deterministic fashion.” *Drawdown* at 13. For these reasons, “the permit shall not be approved until the necessary hydrologic . . . information is available to the regulatory authority.” 30 C.F.R. § 780.21(c)(3).

F. The Existing CHIA is Inadequate and Must be Updated

While Peabody must submit adequate hydrologic assessments and plans in the Mining Application, OSM must prepare an adequate CHIA (cumulative hydrologic impact assessment). 30 C.F.R. § 780.21(g). The CHIA, among other things, must be sufficient to determine whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area and also assess the impacts of all anticipated mining upon surface and ground water systems in the area. *Id.* When an application for a permit revision has been received—as here—OSM must review it and “determine whether a new or updated CHIA shall be required.” *Id.* at § 780.21(g)(2).

In this case, the record demonstrates that the existing 1989 CHIA is inadequate to fulfill the applicable regulatory requirements. First, the existing CHIA is more than a decade old, and the administrative record does not contain any evidence supporting the sufficiency of the four adopted groundwater criteria to prevent material damage. Second, the CHIA criteria are not supported by adequate modeling or data collection. OSM has not been able to assess criteria 3 and 4 since 1994, due to modeling inadequacy. *Drawdown* at 42. Third, the existing CHIA is extremely difficult to assess, due to lack of information about baseline conditions. *Drawdown* at 50. Fourth, most of the criteria themselves are not sufficiently protective of the N-Aquifer, in part because of their reliance on modeling information. *Id.* The attached report from LFR, entitled

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“Evaluation of Cumulative Hydrologic Impacts on the N-Aquifer” (2000), discusses in detail these and other flaws evident in the current CHIA.

Apart from these issues, the existing CHIA also fails to adequately assess probable impacts associated with Peabody’s revised mining plan. As noted, the CHIA is well over a decade old. The Mining Application includes a new request to increase by more than 30% annual withdrawals from the N-Aquifer, a massive increase from approximately 4000 to 5700 acre feet. Even Peabody acknowledges this pumping scenario will drastically affect drawdown. PHC at 73 (maximum drawdown beneath leasehold 655 feet in 2023). The CHIA must, but does not, consider the mining plan now before OSM. 48 Fed. Reg. 43956 (September 26, 1998) (OSM regulations require “that the CHIA will be updated, if necessary, whenever there are changes to the approved permit”).

Furthermore, a CHIA must consider the impacts of “all anticipated” mining. 30 C.F.R. § 780.21(g). Recently, the Hopi Tribe announced that it has signed a joint development agreement with a subsidiary of Reliant Resources Inc. of Houston, Texas, to explore building a 1,200-megawatt, coal-fired generating station on the reservation. Arizona Daily Sun (April 6, 2002). This plant will require water from groundwater aquifers for cooling. The impact of this new plant, in addition to those impacts related to Peabody’s proposed operations, must be considered in the CHIA and the PHC—something that has not happened to date.

For these reasons, OSM must prepare and circulate for comment a new CHIA. This responsibility is enhanced by the reality that “the CHIA is particularly important in the West.” *Environmental Regulation of Coal Mining: SMCRA’s Second Decade* (ELI 1991) at 160. “The Office of Technology Assessment has noted that the complex geology and slow recharge rate of western aquifers make hydrologic impacts difficult to project.” *Environmental Regulation of Coal Mining: SMCRA’s Second Decade* (ELI 1991) at 160, citing *Office of Technology Assessment, Western Surface Mine Permitting and Reclamation* 7 (1986) (“similarly, the slow recharge rate of some Western aquifers makes it difficult to judge the effectiveness of current plans for restoration of the hydrologic balance until years after the final bond release”). For these reasons, an updated and sufficiently protective CHIA is an absolute necessity.

G. The Mining Application is Inconsistent with Requirements to Protect the Hydrological Balance

Finally, federal regulations require that “[a]ll surface mining . . . shall be conducted to minimize disturbance of the hydrologic balance within the permit and adjacent areas [and] to prevent material damage.” 30 C.F.R. § 816.41(a). These are separate requirements. See 48 Fed. Reg. 43956 (September 26, 1983). A hydrologic reclamation plan shall be submitted to show how these, and related requirements, will be met. 30 C.F.R. § 780.21(h). “It shall contain the steps to be taken during mining and reclamation through bond release to minimize disturbances to the hydrologic balance

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within the permit or adjacent areas; . . . and to protect the rights of present water users.” Id. This plan further shall include a monitoring plan that describes how data collected can be used to determine impacts of the operation on the hydrologic balance. 30 C.F.R. § 780.21(i).

Peabody has met none of these requirements.

First, as documented herein, in no way can Peabody’s plan to increase withdrawals from the sole source of drinking water on Black Mesa—to nearly two billion gallon per year—meet the requirement to “minimize disturbance” to the hydrologic balance. The PHC itself documents Peabody’s admitted responsibility for massive increases in the depth to groundwater—changes in the hydrologic balance that Peabody’s own figures show are pervasive throughout the Mesa. See e.g. Mining Application, Chapter 18, Figures 19b and 19d. These changes, even assuming for the sake of argument that they will not cause material damage, clearly fail these corollary OSM requirements. Peabody, far from minimizing impacts, actually proposes to exacerbate them, as documented in the company’s PHC. Moreover, Peabody totally fails to propose any “steps to be taken during mining and reclamation” that would minimize impacts, such as ceasing its use of N-Aquifer water for other operational needs, changing its water-coal mixture in the slurry, using reclaimed water or other water sources as a slurry ingredient, or not using water at all to transport coal. See Drawdown 16, 31-32. Given the fact that analysis of the existing CHIA, as well as the draft criteria considered by OSM in the late 1980s, indicates material damage, Peabody’s failure is all the more glaring—and OSM’s duty to enforce this SMCRA requirement all the more evident.

Second, Peabody completely ignores the requirement that its monitoring plan “shall describe how the data may be used to determine the impacts of the operation on the hydrologic balance.” 30 C.F.R. § 780.21(h)(i). When Peabody’s plan is reviewed, it is patent that there is no discussion at all about this critical issue—one that completely precludes use of empirical data to assess the N-Aquifer. See Mining Application, Chapter 16.

For example, Peabody’s discussion of spring monitoring is typically oblique and inconsistent with OSM regulations. Peabody’s discussion generally describes situations in which Peabody may review spring data for impacts caused by mining, but it fails to define a single term; fails to describe even generally what would constitute a “detrimental” impact; and, in sum, provides none of the expressly required information. See Mining Application, Chapter 16 at 54-55. Indeed, in some cases, the lack of any express guideline is simply acknowledged by Peabody, as where it states that assessment of diffuse seepage “is a judgment call by the field technician on a case by case basis.” Id. at 55. Peabody goes on to note that no flow value will be assigned if the technician does not “feel comfortable” doing so. Id.

H. OSM Cannot Lawfully Make Findings Necessary to Issue the Permit

For all of these reasons, and those discussed elsewhere in this comment letter, OSM cannot comply with regulations that require certain written findings to be made before a permit is issued. 30 C.F.R. § 773.15. In particular, OSM cannot find that “the applicant has complied with all requirements of the Act and the regulatory program.” *Id.* at § 773.15(a). Nor can OSM presently find that the “regulatory authority has made an assessment of the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area and has determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.” *Id.* at § 773.15(j).

II. Fish, Wildlife and Plants

Peabody’s Application should also be rejected because of its potential impact on sensitive fish, wildlife and plants in the Black Mesa region. Extending the life of the Black Mesa mine, adding the J-23 coal reserve area to the mine, approving the construction a new haulroad, and authorizing the creation of fourteen new sediment structures are all actions that may have serious negative effects on federally protected fish, wildlife and plants. First, Peabody has failed to show that its Mining Application will not effect plants or animals protected by the federal Endangered Species Act (“ESA”), 16 U.S.C. § 1532, *et seq.* Second, the Mining Application raises significant questions about its compliance with the Migratory Bird Treaty Act (“MBTA”), 16 U.S.C. § 703 *et. seq.*, and the Bald and Golden Eagles Protection Act, 6 U.S.C. § 668 *et. seq.* Peabody’s Mining Application must therefore be rejected.

A. The Endangered Species Act

Passed nearly unanimously,² the federal Endangered Species Act (“ESA”), 16 U.S.C. § 1532, *et seq.*, announced Congress’s determination that saving the nation’s fish and wildlife would become the federal government’s “first priority.” Tennessee Valley Authority v. Hill, 437 U.S. 153, 185 (1978). In order to accomplish this goal, the ESA provides a comprehensive statutory structure to safeguard the survival and recovery of species threatened with extinction. Two of the ESA’s mandates have particular relevance to the Mining Application. First, the ESA requires OSM to ensure that “any action” it authorizes, funds, or carries out “is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modifications of habitat or such species which is determined . . . to be critical.” 16 U.S.C. § 1536(a)(2). Second, the ESA requires that before Peabody may “take” any endangered or threatened species in connection with its mining activities, the U.S. Fish

² The Senate enacted the ESA unanimously; in the House there were only four dissenting votes. 119 Cong. Rec. 25,694, 42,915 (1973).

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and Wildlife Service must first issue Peabody a “incidental take permit” accompanied by a legally valid “biological opinion.” 16 U.S.C. § 1536(a).

OSM’s own regulations recognize the importance of making certain that applicants for surface mining permits (or significant permit revisions) satisfy these strict requirements. Under OSM rules, all permit applicants are required to “affirmatively demonstrate” that any proposed mining operations “would not affect the continued existence of endangered or threatened species or result in destruction or adverse modification of their critical habitats.” 30 C.F.R. § 773.15. See also 30 C.F.R. § 816.97 (prohibiting the conduct of any surface mining “which is likely to jeopardize the continued existence of endangered or threatened species . . . or which is likely to result in the destruction or adverse modification of designated critical habitats of such species.”)

The information provided by Peabody in its Mining Application does not even come close to satisfying this burden. Much of the biological data provided by Peabody is badly out of date or incomplete. The more recent biological surveys are too narrow, and there are indications that the methodologies used to conduct those surveys are badly flawed.

First, much of the biological data provided by Peabody in its initial permit application is now badly out of date. Initial baseline fish and wildlife studies for the Black Mesa leasehold were conducted between 1979 and 1983.³ Mining Application, Chapter 10, at 1. In short, over twenty years have passed since Peabody’s initial studies were conducted. Although the studies have been revised sporadically since over the years, neither the scope nor the depth of these revisions is explained by the Mining Application. Based upon the footers in Chapter 10, however, it appears that there has been no revision to the biological data—with the exception of a narrow study of the proposed haulroad corridor (discussed below)—since 1994.⁴ A seven year gap in

³ As discussed below, it is important to note that these studies did not actually involve the placement of survey sights on the J-23 area itself.

⁴ Specifically, Chapter 10 indicates the following updates to the biological data: (1) a Vegetation and Wildlife Resources Report was completed in 1984 (Application, Chapter 10, p. 3.); (2) Chapter 10’s “Results and Discussion of the Fish and Wildlife Resource Studies,” its discussion of mule deer surveys, the “Aquatic Communities” section, the “Important Habitats” section and Tables 1, 2, and 22 were revised in December of 1986 (Application, Chapter 10, pp. 16, 54, 57.); (3) Tables 16, portions of the “Impact Analysis” section, and portions of Chapter 10’s bibliography were revised in December of 1988 (Application, Chapter 10, p. 47, 75); (4) The “List of Tables,” “Important Wildlife Species” section, and “Wildlife Resources Protection” section was revised in September of 1993 (Application, Chapter 10, pp. ii, 64, 70); the Index, List of Tables, “Mixed Conifer Woodland” section, and Tables 28 and 30 were revised in 1994 (Application, Chapter 10, p. i, iii, 14, 66, 71); and (5) Attachment 3 was added to Chapter 10 in 1995.

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biological data about the presence of protected species in the lease area is simply not sufficient to demonstrate that Peabody's proposed activities will not jeopardize federally listed species or result in their take. At a minimum, OSM must require Peabody to completely update its survey data for the Black Mesa Mine.

This is especially true with respect to the J-23 coal area, which Peabody now proposes to transfer into the Black Mesa mine complex.⁵ Letter from Randy Lehn to Jerry Gavette dated 1/17/02 at 1. There has been virtually no biological data collected about J-23. Indeed, an examination of Figure 1 in Chapter 10 shows that Peabody has not surveyed the J-19, J-20, J-21, and J-23 areas since 1983. Mining Application, Chapter 10 at 2. More disturbingly, a map of the sampling sites (found at Figure 2) reveals that none of the wildlife sampling sites used to compile Chapter 10's data were located in the J-23 area. Wildlife surveys conducted last year and provided with Peabody's Application also were limited to the proposed alignments for the haulroads and deadhead connecting J-23 to the Black Mesa Mine coal preparation facilities. Mining Application, Chapter 10 at Attachment 4 at 1.⁶ These surveys therefore did not include the vast majority of J-23 itself, but only narrow bands of habitat between J-23 and the rest of the Black Mesa Mine. In short, Peabody simply has not provided OSM with sufficient information about the biological communities inhabiting the J-23 area. Accordingly, before OSM can grant Peabody's application it must require Peabody to conduct a biological vegetation survey of J-23.

Second, there are serious, substantive problems with the biological studies that Peabody has conducted. For example, the 2001 Biological Report conducted by SWCA, Inc. of the haulroad transportation corridors did not properly survey for the presence of northern goshawks.

Chapter 10 notes that multiple breeding pairs of northern goshawks have been reported in the Black Mesa area between 1982 and 1985. Mining Application, Chapter

⁵ As we argue above, because Peabody proposes to extend the life of the mine until 2016, its argument that OSM should "limit its review to only the materials in the application that are changing as a result of this and the August 10, 2001, submittals" is wrong. Letter from Randy Lehn to Jerry Gavette dated 1/17/02 at 1. To the contrary, because Peabody has proposed a significant revision to the entire Black Mesa permit (by extending the life of the mine) OSM is obligated to conduct a new, and thorough, review of the entire mining application. However, even if OSM accepts Peabody's suggestion to limit the scope of its review—which it should not—OSM must at a minimum conduct a thorough review of the consequences of mining in the J-23 area (which Peabody now proposes to transfer to the Black Mesa mine in its entirety) rather than limiting its inquiry to the haulroad transportation corridors, as Peabody urges. *Id.*

⁶ Peabody's updated vegetation surveys, conducted by ESCO Associates, are similarly limited to the "study of the J23 Conveyor Alternative Routs (Project Area)." Chapter 10, ESCO Study at 1.

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10, Table 16.) Chapter 10 also states that the northern goshawk's preferred habitat is pinyon-juniper woodlands. Mining Application, Chapter 10, Table 1. Granting Peabody's Application would result in the disturbance of 2,260.3 acres of pinyon-juniper woodland in the J-23 area alone. Mining Application, Chapter 9, Table 19. Yet despite the obvious potential of Peabody's activities to disturb this species, SWCA conducted only two surveys for northern goshawk (the first on June 7-9, 2000 and the second on June 27-29, 2000). Mining Application, Chapter 10, Attachment 4 at 5. The fact that no northern goshawks were found during either of these survey periods should be given little weight given that SWCA's notes that "[o]n Black Mesa, northern goshawks are common winter visitors." Mining Application, Chapter 10, Attachment 4 at 6 (emphasis added.) Nor is this the only major oversight in SWCA's biological surveys. For example, SWCA admits that "species-specific surveys for the Navajo Mountain Mexican vole were not conducted." Mining Application, Chapter 10, Attachment 4 at 5.

Peabody's older biological surveys suffer from similar flaws. For example Peabody has never conducted a detailed bat survey of the lease area, which is why the list of bat species are considered of "probably occurrence" rather than of recorded occurrence. Mining Application, Chapter 10 at 8. Similarly, other than a very brief discussion of aquatic community surveys, Chapter 10 provides no information on the methods of surveying for reptiles and amphibians. See Mining Application, Chapter 10, p. 9. Indeed, of the 56 species analyzed as part of the Listed Species Analysis (Chapter 10, Table 28, p. 66-67), only two species, the Mexican Spotted Owl and black-footed ferret, appear to have received updated analysis as part of the current Permit Application.

Another problem with the biological analysis in Peabody's Application is its failure to take into account the effect that systematically drawing down the N-Aquifer will have on species dependent upon riparian or aquatic areas. As we have pointed out herein, there is substantial evidence that the N-Aquifer is suffering signs of material damage. Indeed, the USGS's own data shows that discharges to local springs and washes fed by the N-Aquifer, including many washes that are tributaries of the Little Colorado River, have declined markedly in recent years. Peabody's withdrawal of N-Aquifer water to feed its coal operations causes these declines.

In Chapter 10, Peabody acknowledges that several endangered and threatened species are known to exist in the Black Mesa region and are dependant upon the aquatic and riparian habitats that are fed by the N-Aquifer. For example, a population of humpback chubs (*Gila cypha*), a federally endangered species, can be found in the confluence of the Little Colorado River. Mining Application, Chapter 10 at 68. As Peabody itself acknowledges, when it commented on the Environmental Impact Statement for the Black Mesa Mine, the United States Fish and Wildlife Service noted the potential for Peabody's use of N-Aquifer water to negatively effect streamflows to the Little Colorado River. According to Peabody:

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USFWS expressed concern that mining-related surface water depletions in the Moenkopi and Dinnebito drainages, both tributary to the Colorado River, might reduce streamflow in the Little Colorado.

Mining Application, Chapter 10, p. 68.⁷ Although Peabody goes on to dismiss this concern as unfounded based on the CHIA, OSM has itself acknowledged that the CHIA is badly out of date and needs to be updated. *Drawdown* at 15. Indeed, there is considerable evidence, discussed above, that Peabody's N-Aquifer withdrawals are causing a reduction in flows to both the Moenkopi and Dinnebito drainages. USGS's data, for example, show that since the early 1980's, discharges to Moenkopi Wash have decline by approximately 25 percent. *Drawdown* at 11.

Nor is the humpback chub the only federally protected species that may be affected by a decline in discharge to springs and washes caused by Peabody's mining. The razorback sucker (*Xyrauchen texanus*), listed as endangered, can also be found in the Little Colorado River, (Mining Application, Chapter 10, p. 68.), and populations of southwestern willow flycatchers, also listed as endangered, depend upon the Little Colorado's riparian habitat. Mining Application, Chapter 10, p. 71j. Finally, the Navajo sedge is a federally threatened plant entirely dependent upon pinyon-juniper seep/spring habitats. Navajo sedge populations can be found within six miles of the mine's leased area and the population to the southwest (Mining Application, Chapter 9 p. 65a.) may suffer from Peabody's drawdown of the N-Aquifer. Despite this fact, however, Peabody's Application does not offer any new or updated analysis of the mine's potential to affect these species.

Given all of these deficiencies and problems, OSM simply cannot conclude that Peabody's Application will not jeopardize the existence of an endangered or threatened species or result in the adverse modification of its critical habitat. Certainly, Peabody has far from met its burden to "affirmatively demonstrate" that fact. 30 C.F.R. § 773.15. Moreover, it is plain from even the spotty and out-of-date biological data that Peabody has compiled that OSM must at a minimum prepare a Biological Assessment for the United States Fish and Wildlife Service's review, engage in "formal consultations" with the Service, and await the preparation of a "Biological Opinion" from Service personnel before it may approve Peabody's Application. Kendall's Concerned Area Residents, 129 IBLAS 130 141-42 (1994); see also Greenpeace v. National Marine Fisheries Serv., 80 F. Supp. 2d 1137 (W.D. Wa. 2000) (noting that "[d]uring consultation or re-initiation of consultation, an agency can take no action that constitutes an irreversible or irretrievable commitment of resources which has the effect of foreclosing the formulation or implementation of reasonable and prudent alternatives."). Peabody has failed to provide OSM with enough information to even begin meaningful formal consultations. Accordingly, Peabody's Mining Application must be denied.

⁷ See Memorandum from Field Supervisor to Chief, Federal Programs Division, Office of Surface Mining, Reclamation and Enforcement dated 8/30/89 at 1.

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B. The Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

In addition to its potential impact on threatened and endangered species, Peabody's mining activities may also result in the take of migratory birds as well as bald and golden eagles. Both the Migratory Bird Treaty Act ("MBTA"), 16 U.S.C. § 703 et seq., and the Bald and Golden Eagles Protection Act ("Eagles Protection Act"), 16 U.S.C. § 668 et seq., prohibit any such take.

The Eagles Protection Act states that no one shall "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner any bald eagle commonly known as the American eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof of the foregoing eagles." 16 U.S.C. § 668. Similarly, the MBTA, provides that "[i]t shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill . . . any migratory bird." 16 U.S.C. § 703. OSM's regulations also prohibit any surface mining activity that "would result in the unlawful taking of a bald or golden eagle, its nest, or any of its eggs." 30 C.F.R. § 816.97.

While the MBTA does not prohibit the indirect taking of migratory birds caused by habitat modification, Seattle Audubon Society v. United States Forest Service, 952 F.2d 297 (9th Cir. 1991), courts have long held that actions which cause the direct death of migratory birds violate the MBTA. For example, the MBTA prohibits the unintentional poisoning of migratory birds from toxic substances. United States v. FMC Corp., 572 F.2d 902 (2d Cir. 1978) (killing migratory birds by dumping waste water); United States v. Corbin Farm Serv., 444 F. Supp. 510 (E.D. Cal. 1978) (killing migratory birds from misapplication of pesticide). Similarly, operators of electric transmission lines that kill migratory birds may be held liable under the MBTA. United States of America v. Moon Lake Electric Ass'n., Inc., 45 F. Supp. 2d 1070, 1084 (D. Colo. 1999). This principle has been extended to hardrock mining, where cyanide laced settling ponds often cause the death of migratory birds. See United States v. Kennecott Communications Corp., No. N-90-16M (D. Nev. Mar. 8, 1990); United States v. Echo Bay Minerals Co., No. CR N-90-52HDM (D. Nev. 1990); United States v. Nerco-Delamar Co. (a.k.a. Delamar Silver Mine), No. CR 91-032-S-HLR (D. Idaho Apr. 21, 1992). Similarly, Courts have held that habitat modification that causes the direct death of migratory birds may violate the MBTA. See, e.g., Sierra Club v. Martin, 933 F. Supp. 1559, 1565 (N.D. Ga. 1996) (enjoining Forest Service authorized timber harvest that would result in the deaths of migratory songbirds); Sierra Club v. USDA, No. 94-CV-4061-JPG (S.D. Ill. Sept. 25, 1995) (remanding Management Plan to the Forest Service where the Plan allowed logging during the nesting season). Surface mining operations, no less than logging, may result in the death or injury of migratory birds.

These cases' rationales apply with equal force to the Eagle Protection Act. Moon Lake Electric Ass'n., Inc., 45 F. Supp. 2d at 1087. Indeed, OSM's regulations explicitly recognize the danger that mining operations pose to eagles, going so far as to require

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mining operators to “promptly report” any golden or bald eagle nests within a mine permit area. 30 C.F.R. § 816.97.

Nor can there be any question that both eagles and migratory birds may be found in significant numbers throughout the Black Mesa Mine. Over 200 species of birds, including 22 species of raptors (and both golden and bald eagles), have been recorded within the Black Mesa leasehold. Mining Application, Chapter 10 Table 1, 16. Over 30 percent of these birds can be found in the lease area’s pinyon-juniper woodlands (that habitat that dominates the J-23 area). *Id.* at Table 2, p. 25. Moreover, the majority of these bird species are protected under the Migratory Bird Treaty Act. See 50 C.F.R. § 10.13 (listing birds species protected under the MBTA). Indeed, every bird found in a survey of the J-20 and J-21 areas (which are adjacent to J-23) between 1982 and 1983 are protected under the MBTA. Despite this fact, however, Peabody has not conducted any studies within the last seven years to catalogue the range and densities of MBTA protected species on the leasehold. Nor, to our knowledge, has Peabody conducted any recent surveys for golden or bald eagle nests, with the exception of the single narrow SWCA survey (discussed above).⁸

Given the obvious abundance of migratory birds or eagles in the Black Mesa region, it is possible—if not highly likely—that surface mining operations in the mine area generally, and J-23 in particular, will directly cause the death of migratory birds or the destruction of their nests and eggs. This is especially true because Peabody simply has no idea of the location or densities of migratory birds and eagles on the leasehold. Peabody has also failed to propose taking any steps (such as refraining from mining activity during nesting and fledgling seasons) to minimize the death or injury to migratory birds. OSM should therefore deny Peabody’s Application.

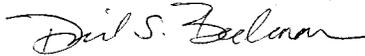
⁸ Another area that Peabody has provided scant analysis of is the potential effect on migratory birds of constructing 14 new sediment structures. As discussed above, it is well established that sediment structures that contain chemicals toxic to migratory birds may effect a “taking” under the MBTA. See *United States v. Kennecott Communications Corp.*, No. N-90-16M (D. Nev. Mar. 8, 1990). Many of these sediment structures—which are essentially designed to function as retention basins for water contaminated by Peabody’s mining activities—will attract migratory birds. However, Peabody does not analyze the potential hazards that the sediment structures pose to wildlife nor has Peabody designed any netting or covers for these basins. See 30 C.F.R. § 819.97(e)(3) (requiring mining operators to “fence, cover, or use other appropriate methods to exclude wildlife from ponds which contain hazardous concentrations of toxic forming-materials.”).

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II. Conclusion

Thank you for the opportunity to provide these written comments. Please do not hesitate to contact us if you have any questions or if we can provide any further assistance in this matter. We can be reached at (323) 934-6900.

Sincerely,



David S. Beckman
Senior Attorney

Andrew Wetzler
Senior Project Attorney

Enclosures

cc: Mr. Vernon Masayesva, Executive Director, Black Mesa Trust
Members of the Board of Directors, Black Mesa Trust
Honorable Wayne Taylor, Chairman, Hopi Tribe
Honorable Kelsey A. Begaye, President, Navajo Nation
The Honorable John McCain, United States Senate
The Honorable Gail Norton, Secretary of the Interior

Denise Hoffner-Brodsky, Esq., Sierra Club
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OFFICES IN PHOENIX SEATTLE LOS ANGELES

HOWARD M. SHANKER

April 26, 2002

Via Federal Express Next Day Air

Mr. Jerry D. Gavette
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

Re: Comments and Objections to the January 17, 2002 Peabody Western Coal Company Request to Lift the Administrative Delay on the Permanent Program Permit or Life-of-the-Mine Permit for the Black Mesa Mine and for Approval of Peabody's Request to Incorporate the Mining Sequence for the J-23 Coal Reserve Area in the BM2P3 Application (hereinafter collectively referred to as the "Permit").

OSM Must Comply with the National Environmental Policy Act ("NEPA") Before Deciding Whether or Not to Issue the Permit

Dear Mr. Gavette:

These Comments and Objections are submitted pursuant to 30 C.F.R. § 773.6(b), on behalf of: (1) the Sierra Club; (2) the Lawyer's Committee for Civil Rights Under Law; (3) the Black Mesa Trust; (4) each of the directors of the Black Mesa Trust, as individuals; and (5) the Natural Resources Defense Council. Each of these individuals and organizations are submitting additional comments and data under separate cover, all of which are incorporated herein by this reference.

BACKGROUND

The Black Mesa Mine is currently authorized to operate by the OSMRE under Initial Program Permit AZ-0001 and the administrative delay provisions of 30 C.F.R. § 750.11(c). Permit AZ-0001 was issued on January 29, 1982. Since Permit AZ-0001 was issued before the promulgation of the permanent Indian land SMCRA regulations, Peabody filed another application for a permit on October 31, 1984, incorporating the information in the 1982 permit. On July 10, 1985, OSM authorized Peabody to operate after May 28, 1985 in the AZ-001 permit area.

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In the mid-1980s, Peabody applied for a life-of-the-mine mining plan and permit approval for the entire Black Mesa Complex. OSM's decision on issuance of a permit under the Indian lands permanent regulatory program has, however, been administratively delayed by the Secretary of the Department of Interior due to ongoing discussions over the Little Colorado River litigation. *See also* 30 C.F.R. § 750.11(c). Thus, the Kayenta Mine operates under the Permanent Program Permit AZ-0001 and the Black Mesa Mine operates under Interim program Permit AZ-0001.

In its letter requesting a revision to the Black Mesa Mine Permanent Program Permit (BM2P3) Application dated January 17, 2002, Peabody requests approval to incorporate the mining sequence for the J-23 coal reserve area in the BM2P3 application. Peabody estimates that approval of the revision will extend the life of the Black Mesa mine until 2016, with almost 61.4 million tons of coal produced between 2005 and 2016. Peabody projects that withdrawals of ground water from the N-aquifer will increase from 4,400 acre-feet to 5,700 acre-feet, annually.

PEABODY'S PERMIT APPLICATION IS A SIGNIFICANT REVISION THAT MUST BE TREATED AS A NEW PERMIT APPLICATION FOR NEPA PURPOSES

We understand that OSM may agree that the Permit application requests significant revisions that will need an Environmental Impact Statement ("EIS"). We agree with OSM's conclusion in its letter of March 6, 2002 to Vernon Masayesva that Peabody's requested Permit revision is significant under the regulations and should be treated as a new permit.

Significant revisions trigger the requirement to treat the Permit application as new, i.e., undertake the NEPA process from the beginning and issue an EIS. *See* 30 C.F.R. § 750.12(c)(3)(ii)(C) ("significant revisions shall be processed as if they are new applications . . ."). The Part 750 regulations outline requirements for Surface Coal Mining and Reclamation Operations on Indian Lands. 30 C.F.R. Part 750. According to these regulations, applications for significant revisions shall be processed as new applications in accordance with Parts 773 and 775. 30 C.F.R. § 750.12(c)(3)(C). Under the regulations, in determining what is a significant revision, OSM shall consider, among other things, the environmental effects, the public interest in the operation, or likely interest in the proposed revision, and possible adverse impacts from the proposed revision on cultural resources. 30 C.F.R. § 750.12(c)(3)(B).

The revision has generated a good deal of public interest. Indeed, we understand that as of April 25th, OSM has received more than 5,400 negative public comments on the Permit application. Cultural impacts will also be significant. *See e.g.* Comments on Cultural Resources and Environmental Justice issues submitted under separate cover by the Sierra Club, the Lawyer's Committee for Civil Rights Under Law, and the Black Mesa Trust, all of which were previously incorporated herein.

The Permit revision will also have significant environmental effects. *See e.g.* Comments by the Natural Resource Defense Council submitted under separate cover and previously incorporated herein. For example, hydrogeologists at the Interior Department's Office of Surface

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Mining Reclamation and Enforcement have monitored the health of the N-aquifer since the late 1980s, and their records, together with data collected by the U.S. Geological Survey and the Peabody Coal Company itself, paint the picture of a system in decline. Since Peabody began using N-aquifer water for its coal slurry operations, pumping an average of 4,000 acre feet – more than 1.3 billion gallons – each year, water levels have decreased by more than 100 feet in some wells and discharge has slackened by more than 50 percent in the majority of monitored springs. There are reports that washes along the mesa's southern cliffs are losing outflow. There are also signs that the aquifer is being contaminated in places by low-quality water from overlying basins that leaks down in response to the stress caused by pumping. These developments threaten the viability of the region's primary water source.

OSM'S CONSIDERATION OF THE PERMIT APPLICATION IS A MAJOR FEDERAL ACTION THAT SIGNIFICANTLY AFFECTS THE QUALITY OF THE HUMAN ENVIRONMENT – OSM MUST BEGIN THE NEPA PROCESS EARLY ON AND PREPARE AN EIS.

We understand that OSM may agree that the revision triggers NEPA compliance. This decision is correct under the circumstances. OSM cannot overlook its well-established obligation to comply with NEPA. *See* 30 C.F.R. § 750.6(a)(7) (“OSM shall ensure compliance with the requirements of the NEPA [citations omitted] with respect to permitting actions for surface coal mining and reclamation operations on Indian lands.”); *see also, e.g.* 30 C.F.R. § 746.13(b) (NEPA compliance on Mining Plan); 30 C.F.R. § 746.18(d) (Permit revisions that constitute a mining plan modification).

In determining the significance of a project and whether or not an EIS is required, the applicable regulations generally mirror those same elements discussed previously in determining whether or not to treat a revision as a new permit under 30 C.F.R. § 750.12(c)(3)(B). Thus, in light of the controversial nature, the cultural impacts and the environmental impacts that can likely be attributed to the proposed revisions, OSM's approval of the Permit would be a major federal action that significantly affects the quality of the human environment. *See e.g.* 40 C.F.R. § 1508.18 (defining “major federal action”); 40 C.F.R. § 1508.27 (defining “significantly”); 40 C.F.R. § 1508.14 (defining “human environment”). As a result, OSM is required to initiate the NEPA process and complete an EIS prior to deciding whether or not to approve the Permit application. *See e.g.* 40 C.F.R. § 1500.1(b) (“NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken.”); 40 C.F.R. § 1501.2 (“Apply NEPA early in the process.”).

OSM's publication of a Final Environmental Impact Statement for a prior Proposed Permit Application, Black Mesa-Kayenta Mine, Navajo and Hopi Indian Reservations, Arizona, in June 1990, has no bearing on OSM's obligation to review the Permit application under NEPA. In part: (1) the Permit application must be treated as a request for a new permit – a new permit of this magnitude requires preparation of an EIS; (2) there has been a lapse of approximately 12 years since the historic EIS was published; (3) as discussed briefly above, significant new data has been developed during these years including, but not limited to, publication of reports and the

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issuance of studies recalculating recharge and drawdown from the N-aquifer; (4) as discussed briefly above, the revision is controversial and has generated considerable public interest; and (5) the revision will have significant impacts on the society and culture of the indigenous peoples living in the area – especially if their primary/sole and historic source of potable water is further depleted.

PUBLIC REVIEW UNDER SMCRA IS NOT A SUBSTITUTE FOR NEPA COMPLIANCE, WHICH MUST INFORM THE PUBLIC AND ENABLE THEM TO PARTICIPATE IN ALL ASPECTS OF THE DECISION-MAKING PROCESS

Although it is unclear at this time, we understand that OSM may be attempting to rely on the public review provisions of SMCRA to satisfy NEPA scoping requirements and that OSM intends to address other NEPA issues at a later date. It is, however, clear that no NEPA compliance will occur before the current deadline for public comments and objections pursuant to SMCRA on Peabody's revised Permit application. This bifurcation of the NEPA process is not consistent with either the spirit or the letter of the law. Among other things, it deprives the public of the ability to understand extremely technical and complex environmental issues, thereby significantly impeding the public's ability to present complete comments and objections.

As an initial matter, applicable NEPA regulations require the publication of a "notice of intent," as soon as practicable after OSM's decision to prepare an EIS and before the scoping process can begin. 40 C.F.R. § 1501.7. The notice of intent indicates that an EIS will be prepared and considered. The notice must, in part: (a) describe the proposed action and possible alternatives; and (b) describe the agency's proposed scoping process. 40 C.F.R. § 1508.22. We are unaware of OSM's publication of such notice.

We were similarly not aware that OSM has proposed and/or vigorously considered possible alternatives to the proposed action – as required in the notice of intent. Indeed, in commenting on the Permit revision a thorough disposition of alternatives, a basic tenet of NEPA compliance is neither developed nor even appropriate.

Similarly, OSM is required to specifically invite interested persons, including other federal agencies, tribes and local governments to participate in the scoping process. 40 C.F.R. § 1501.7. Under NEPA, however, interested persons not only need to be notified of the process, they need to be informed of substance. Thus, agencies are instructed to:

Put together a brief information packet consisting of a description of the proposal, an initial list of impacts and alternatives, maps, drawings, and any other material or references that can help the interested public to understand what is being proposed. . . . At this stage, [the very beginning of the scoping process] the purpose of the information is to enable participants to make an intelligent

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contribution to scoping the EIS. Because they will be helping to plan what will be examined during the environmental review, they need to know where you are now in that planning process.

CEQ, General Counsel Scoping Guidance at II.B.2. (April 30, 1981).

We are unaware of any such scoping documentation. Indeed, involvement of participants is currently limited to commenting on the Permit revision. OSM has not provided, nor does it appear ready to provide, sufficient "information ... to enable participants to make an intelligent contribution to scoping the EIS." Regrettably, OSM has not even provided sufficient information on the Permit revisions for interested persons to make completely informed comments under SMCRA, let alone in accordance with the broader scope of issues implicated under NEPA. Scoping the EIS is not even a topic of discussion at the present time. Without more, OSM cannot rely on the Permit comment process to satisfy the NEPA scoping requirement. Indeed, it is evident from the purpose of scoping, that it cannot be separated out from preparation of the EIS. It is part and parcel of the same process.

[s]coping is not simply another "public relations" meeting requirement. It has specific and fairly limited objectives: (a) to identify the affected public and agency concerns; (b) to facilitate an efficient EIS preparation process, through assembling the cooperating agencies, assigning EIS writing tasks, ascertaining all the related permits and reviews that must be scheduled concurrently, and setting time or page limits; (c) to define the issues and alternatives that will be examined in detail in the EIS . . . ; and (d) to save time in the overall process by helping to ensure that draft statements adequately address relevant issues, reducing the possibility that new comments will cause a statement to be rewritten or supplemented.

CEQ, General Counsel Scoping Guidance, at I.B.

None of these "specific and fairly limited objectives" are being achieved through the public comment process on Permit revisions.

CONCLUSION

OSM is required to undertake the NEPA process, and issue an EIS, before it decides whether or not to approve the Permit application. One of the basic elements of NEPA compliance is maximizing informed public participation in the decision-making process. OSM has not adequately informed the public of the impacts of the proposed Permit revisions, even for purposes of submitting comments pursuant to SMCRA. OSM's current comment period, that is about to close, is clearly not adequate to meet the greater level of public involvement and scrutiny mandated by NEPA.

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Even assuming, arguendo, that interested parties were fully informed for purposes of the current comment period, scoping under NEPA, and commenting on the Permit application, are neither meant to, nor do they, achieve the same objectives. OSM's failure to undertake appropriate scoping in the preparation of an EIS will increase the likelihood of litigation and likely result in long-term delays and inefficiencies in the EIS process itself. The preparation of an improperly informed EIS and/or the decision not to prepare an EIS are both final agency action subject to judicial review under the Administrative Procedure Act, 5 U.S.C. § 704.

Sincerely yours,

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April 26, 2002

Mr. Gavette,

On behalf of the Sierra Club, the Black Mesa Trust and each of its directors individually, the Lawyer's Committee for Civil Rights Under Law ("Lawyer's Committee"), and the Natural Resources Defense Council ("NRDC"), we submit the following comments and objections to the January 17, 2002 Peabody Western Coal Company request to the Office of Surface Mining Reclamation and Enforcement ("OSMRE") and to lift the administrative delay on the Permanent Program Permit or life-of-the-mine permit for the Black Mesa Mine and for approval of Peabody's request to incorporate the mining sequence for the J-23 coal reserve area in the BM2P3 application.

These are only one part of the comments being submitted to OSMRE on behalf of the organizations listed above. We incorporate by reference into our comments and objections those which are also being filed by the Black Mesa Trust, NRDC, and the Lawyers' Committee under separate cover, including all of the exhibits attached to each of the comments. Our comments and objections are submitted pursuant to 30 C.F.R. § 773.6(b) and we request that OSMRE consider these comments and objections and the attached exhibits when determining whether to issue the permit. In addition, we request and expect that OSM will also consider the materials referenced by our comments and by the comments of Black Mesa Trust, NRDC and the Lawyers' Committee which, although not attached as exhibits, are materials publicly available.

The Sierra Club is a national nonprofit environmental organization founded in 1892. It now has more than 700,000 members. The Arizona Chapter of the Sierra Club has over 11,000 members. The Colorado Plateau Group of the Sierra Club has over 700 members, 100 of whom live on or near Black Mesa. Since 1992, the Sierra Club's Environmental Justice Campaign has worked in partnership with communities of color and low-income communities on local environmental, health, and justice issues. The law firm of Hagens Berman & Mitchell is providing pro bono representation and submitting comments on behalf of the Sierra Club and the organizations listed above.

The Lawyer's Committee is a national civil rights organization formed in 1963 to involve the private bar in assuring the rights of all Americans. For thirty-nine years, the Lawyer's Committee has represented victims of discrimination in virtually all aspects of life. In 1991, the Lawyer's Committee formed its Environmental Justice Project to represent communities of color in environmental and civil rights matters. We use the rule of law to challenge environmentally discriminatory conditions and decisions, and ultimately to seek justice, for people of color who are fighting to clean up contamination on the land where they live or who are fighting to stop environmentally harmful activities from occurring in their neighborhoods. The Lawyer's Committee has partnered with the law firm of Shearman and Sterling to provide pro bono representation to the Black Mesa Trust for issues related to the Black Mesa Mine and the Navajo Aquifer ("N-Aquifer"). Our comments are drawn from the Lawyer's Committee's long and varied experience with the administration and application of the nation's civil rights laws, including within the environmental context.

The Black Mesa Trust is a non-profit, tax-exempt educational and public advocacy organization headquartered on the Hopi Reservation. Many of the members of the Board of Directors of the Black Mesa Trust live on the Hopi Reservation. The Black Mesa Trust develops traditional and non-traditional teaching and learning opportunities to help Hopi and Navajo people understand issues and findings which bear on the well-being of the N-Aquifer, as well as steps they can take to protect this critical resource and preserve those aspects of Hopi and Navajo life that depend upon it.

NRDC is a national nonprofit environmental organization that uses law, science, and the support of its more than 500,000 members nationwide to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. NRDC works to foster the fundamental right of all people to have a voice in decisions that affect their environment. It also seeks to break down the pattern of disproportionate environmental burdens borne by people of color and others who face social or economic inequities.

Thank you for the opportunity to provide written comments. We submit them for inclusion in the record being developed by OSM. Please do not hesitate to contact me if you have any questions or if we can provide any further assistance in this matter. I can be reached at (415) 977-5693.

Denise Hoffner-Brodsky



Environmental Justice Staff Attorney

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CULTURAL IMPACTS**Comments and Objections: The Revised Black Mesa Mine Plan
Has Profound Negative Cultural Impacts**

*In the beginning there was water-Paatuuwaqatsi
From the water came land-Tuuwaquatsi
Then all life was created-Qatsi
It was beautiful-Lomaqatsi!*¹

**PEABODY'S CULTURAL IMPACTS ASSESSMENT IS WHOLLY
INADEQUATE****Background**

In 1990, the Office of Surface Mining and Reclamation Enforcement ("OSMRE") deferred its decision on whether to issue Peabody a permanent program permit "pending the analysis of additional information of water resource impacts."² The refusal to issue the permit was a prudent one, given the evidence of damage to the Navajo aquifer ("N-aquifer") and the resulting cultural impacts from that damage.³ However, the promised analysis was abandoned.⁴ Despite the mounting evidence of continuing N-aquifer damage and water depletion, Peabody's current proposal threatens to extract at a minimum, an additional 423,606,300 gallons of water from the N-aquifer per year.⁵

For years and years, Hopis and Navajos have been telling everyone who will listen that the pumping of their pristine water from the N-aquifer has been drying up their springs, wells and washes. The effects of this water loss are already being felt by farmers and ceremonial practitioners whose way of life is in jeopardy because water is a cornerstone of traditional Hopi and Navajo life.⁶ The community's rallying cry has been, "Stop Peabody pumping by 2005." How has this plea been met? By a revised permit application that calls for an increase in N-aquifer water pumping by more than 30%.

The adverse cultural impacts of Peabody's pumping of N-aquifer water are legion. For traditional Hopis and Navajos, pumping water from the N-aquifer is a

¹ Black Mesa Trust Website-www.blackmesatrust.org

² OSM Press Release from July 6, 1990, "Interior Department Issues Permit for Kayenta Coal Mine, Defers Decision on Black Mesa."

³ See NRDC comments on Hydrogeological Impacts, including all attachments, especially "Drawdown: Groundwater Mining on Black Mesa," ("Drawdown") and hydrogeological reports by Levine, Fricke Recon ("LFR").

⁴ Drawdown, Chapter 1, p. 10.

⁵ See Mine Permit Application and OSMRE public notice.

⁶ In the short time available to prepare these comments, this writer has not had the opportunity to gather all the information necessary to address Navajo cultural impacts as comprehensively as Hopi cultural impacts. This is should not in any way be construed to mean that Navajo cultural impacts are not severe.

per se adverse cultural impact. The very act of extracting water, the source of all life, for industrial use, is in and of itself an affront to Hopi and Navajo traditional cultures. Hopi traditionalists believe "drilling will pierce the great water serpents, and cause them anger, thus drying up more springs."⁷

Peabody's depletion of the sole source of drinking water for Hopi and Navajo living on Black Mesa constitutes an adverse cultural impact. Peabody's depletion of sacred springs associated with traditional ceremonies constitutes an adverse cultural impact. The threat to and fear of losing the ability to live on Black Mesa in an interdependent self-sustaining way because of the depletion of water is an adverse cultural impact.

According to Leigh Kuwanwisiwma, Director of the Hopi Cultural Preservation Office, Hopi ceremonial practitioners are so plagued by worries about the health of the springs, that the usual clarity of mind and soul that Hopis need for their cultural and spiritual practice is clouded. Hopis believe they have a covenant with a deity named Ma'saw to safeguard the springs. There is real fear that unless Hopis stop Peabody's pumping, their sacred covenant will be broken. Thus, Hopi traditional cultural practices are being severely impacted. Mr. Kuwanwisiwma explained that some practitioners believe that by interfering with the natural balance of Hopi water, the water spirits are made so angry that they won't accept petitions for good things to come to the Hopi people. "These concerns integrally affect practitioners."⁸

THE MINE APPLICATION IS INCOMPLETE BECAUSE PEABODY FAILED TO IDENTIFY BLACK MESA AS A TRADITIONAL CULTURAL LANDSCAPE, A DISTRICT ELIGIBLE FOR INCLUSION IN THE NATIONAL REGISTER OF HISTORIC PLACES

The National Register of Historic Places was created "to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment."⁹ The 1992 amendments to the National Historic Preservation Act (NHPA)¹⁰ made it clearer than ever before that Native American traditional cultural properties are eligible for the Register.

Traditional Cultural Properties are historic places that are culturally significant to a particular group or groups. In National Register *Bulletin 38*, the leading guidance document on traditional cultural properties, authors Thomas F. King and Patricia L. Parker assert "a location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world is a prime example of a place possessing "traditional cultural

⁷ Techqua Ikachi-Land and Life the Traditional Viewpoint, Issue Number 14, p. 5.

⁸ Conversation with Leigh Kuwanwisiwma, March 25, 2002.

⁹ 36 CFR § 60.2

¹⁰ USC § 470 et seq.

significance."¹¹ Such is Black Mesa to the Hopis.¹² Black Mesa is the sacred homeland of the Hopi people. It is central to their origin story which tells of a series of migrations that ultimately led the Hopi to Black Mesa; here is an excerpt:

Aliks'! Listen! What follows is an account of the Hopi origin. The Hopis emerged into this, the Fourth World, from the *Sipapuni* in the Grand Canyon. Upon emerging, they encountered *Ma'saw*, the guardian of the Fourth World. A spiritual pact was made with *Ma'saw*, wherein the Hopis would act as the stewards of the earth. As a part of this pact, the Hopis vowed to place their footprints throughout the lands of the Fourth World as they migrated in a spiritual quest to find their destiny at the center of the universe. Hopi clans embarked on a long series of migrations that led them throughout the Southwest and beyond, settling for a time in various places. Following divine instructions, the Hopis continued their migrations until after many generations they arrived at their rightful place on the Hopi mesas.¹³

As evidence of this destiny, Hopis explain that they were led to the fingertips of what is known as the "Hopi hand," in large part, because of the abundance of springs in an otherwise arid land. Hopi refer to this place as *Tuuwanasavi*, which means center of the universe, or heart of mother earth. The development of Hopi society in the midst of what many would see as a hostile, desert environment is nothing short of miraculous and a testament to the spirit of the Hopi. For all these reasons, Black Mesa is a traditional cultural property that is eligible for inclusion in the National Register of Historic Places.

Black Mesa in its entirety meets the ACHP's definition of a "district." "A district is a geographically definable area, urban or rural, possessing a significant concentration, linkage or continuity of sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. A district may also comprise individual elements separated geographically but linked by association or history."¹⁴

A particular kind of district (or site, for that matter) is the "cultural landscape." A recent article in Cultural Resource Management entitled "Cultural Landscapes and the National Register" provides the definition of a cultural landscape: "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values."¹⁵

¹¹ Patricia L. Parker & Thomas F. King, National Park Service, *National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (1990), revised in 1998.*

¹² See attached letter of support from Thomas F. King.

¹³ T.J. Ferguson, Kurt Dongoske, Leigh Jenkins, Mike Yeats, and Eric Polingyouma, "Working Together: The Roles of Archaeology and Ethnography in Hopi Cultural Preservation," in *Cultural Resource Management, Volume 16, Special Issue on Traditional Cultural Properties*, 1993

¹⁴ 36 CFR § 60.3

¹⁵ Cari Goethcheus, "Cultural Landscapes and the National Register," in *Cultural Resource Management, No. 1-2002*. The definition comes from National Park Service, *Cultural Resource Management Guideline, Release No. 5, 1997 (NPS-28)*, p. 179.

Black Mesa is the paradigmatic cultural landscape. Within its borders lie the rich cultural history of the Hopi, the Navajo and their ancestors, a unique set of natural and cultural resources that include the N-aquifer, and fish, wildlife and plants in great need of protection.¹⁶ There has been some criticism of the National Register process as an artificial, piecemeal system which forces Native Americans in particular to engage in "cultural triage."¹⁷ Instead, Indian people desire to reassemble the artificially disassociated components of their culture so that the fullest native cultural meanings associated with things and places are recognized and protected.¹⁸

Although a full explication of Black Mesa's eligibility is beyond the scope of these comments, it bears noting that Black Mesa easily satisfies the criteria for listing in the National Register. It is widely understood that the whole Black Mesa region is "associated with events that have made a significant contribution to the broad patterns of our history." (Criterion (a)).¹⁹ *Bulletin 38* points out that the phrase "our history" refers to the group or groups who define the place as having traditional cultural significance.²⁰

Similarly, Black Mesa satisfies Criterion (b) because of its association with Hopi deities.²¹ Also applicable is Criterion (c)(4) because of the nature of the individual features comprising the Hopi cultural landscape. Criterion (d) may also apply, but criteria a-c are the most relevant to traditional cultural properties. It is incumbent upon OSMRE to see that appropriate ethnographic research is carried out to fully evaluate Black Mesa for the National Register of Historic Places.

PEABODY'S FAILURE TO IDENTIFY TRADITIONAL CULTURAL PROPERTIES IN THE AREA OF POTENTIAL EFFECTS VIOLATES OSMRE REGULATIONS

THE PERMIT APPLICATION VIOLATES 30 CFR § 779.12(b)(1) and 30 CFR § 779.24 (I)

Peabody has not satisfied the requirement of 30 CFR § 779.12(b)(1) to "describe and identify the nature of cultural, historic, and archaeological resources listed or eligible for listing on the National Register of Historic Places."²² The revised Black

¹⁶ See NRDC comment on Impacts to Fish, Wildlife and Plants. Water loss to critical aquatic and riparian habitats due to N-aquifer pumping may already be harming endangered and threatened species which hold special cultural meaning for the Hopi and Navajo. Similarly, threats to eagles and their habitats have tremendous cultural implications.

¹⁷ Richard W. Stoffle, Davis B. Halm, and Diane E. Austin, "Cultural Landscapes and Traditional Cultural Properties: A Southern Paige View of the Grand Canyon and Colorado River," p.1, at www.library.arizona.edu/users/jlcox/fall99/206/cultural1.htm

¹⁸ *Ibid.* p.3.

¹⁹ 36 CFR § 60.4

²⁰ *Bulletin 38*, pp.12-13.

²¹ *Ibid.* p. 13

²² 30 CFR § 779.12(b)(1)

Mesa Mine permit application is myopic in its consideration of cultural impacts. It only addresses what it calls the "J23 coal resource area." Peabody fails to address impacts caused by the increased demand for N-aquifer pumping. Despite the fact that Peabody's proposal calls for more than a 30% increase in water pumping from the N-aquifer, and that Hopi and Navajo people have been complaining for years that Peabody's pumping is materially damaging the N-aquifer, resulting in the depletion of sacred springs and washes, Peabody does not discuss any of the cultural impacts of its N-aquifer water use.

Peabody merely relies on reports of archaeological mitigation work and a report produced by The Hopi Cultural Preservation Office at the request of Peabody, which only addresses the J23 and J9 sites. Without an analysis of how the mining and N-aquifer pumping would affect other traditional cultural properties in the region, the application is fundamentally flawed and legally deficient.

In its cover letter to the application, Peabody states, "[c]hapter 13 of the application specifically outlines PWCC's procedures used to address *all* cultural resources." (*emphasis added*; letter page 3). However, after reading Chapter 13 in its entirety, it becomes clear that Peabody has not even considered the cultural impacts of N-aquifer pumping and the water depletion it has caused. With the passage of the 1992 amendments to the NHPA, both Peabody's and OSMRE's duty to protect traditional cultural properties has been made more explicit than ever before. Peabody's reliance on the work of the Black Mesa Archaeological Project (BMAP) to satisfy its responsibilities for cultural resource protection is misplaced, since BMAP has never considered the use, depletion and damage to the N-aquifer in its cultural context. Peabody's removal of exorbitant amounts of pristine N-aquifer water is adversely affecting places eligible for listing in the National Register of Historic Places.

Thus, Peabody's claim that "no further cultural resource work is required within the confines of the life-of-mine permit area" is unsupported.²³ Peabody has thus failed to comply with 30 CFR §779.24(l), which requires applicants to submit maps showing the "locations of any cultural or historical resources listed or eligible for listing in the National Register of Historic Places and known archaeological sites within the permit and adjacent areas." The language of the regulation makes clear that the "cultural and historical resources" contemplated by the regulation encompass more than "archaeological sites within the permit and adjacent areas."

The regulations also provide that "[t]he regulatory authority may require the applicant to identify and evaluate important historic and archaeological resources that may be eligible for listing on the National Register of Historic Places, through

²³ Chapter 13 of the permit application p.8

Collection of additional information, Conduct of field investigations, or Other appropriate analyses.”²⁴

In an OSMRE guidance document entitled, “Technical Considerations for the Implementation of Historic Property Regulations,” (the document is an attachment to the OSM Directive TSR-7 on Protecting Historic Properties) OSMRE outlines its protocol for determining whether to require the applicant to do more to identify places that may be eligible for the National Register. According to that protocol, OSMRE should require the applicant to conduct further research and analysis if “there is a “substantial likelihood” of the presence of unevaluated properties that may be eligible for the National Register.” Based on the substantial evidence referenced in these comments, OSMRE should conclude there is such a substantial likelihood.

Moreover, the importance of Black Mesa to the Hopi and Navajo peoples should prompt OSMRE to invoke this provision. Better still, because OSMRE has a specific fiduciary duty to the Hopi and Navajo people, OSMRE should employ independent ethnographers to evaluate Black Mesa and its environs for traditional cultural properties, rather than relying on Peabody’s account.²⁵

THE APPLICATION VIOLATES 30 CFR § 780.31 and 30 CFR § 750.12(d)(2)(iii) and (iv)

Since Peabody failed to identify a large number of affected traditional cultural properties, it also failed to incorporate them into its mandatory Reclamation and Operation Plan. 30 CFR § 780.31 provides: “For any places listed on the National Register of Historic Places that may be adversely affected by the proposed operation, each plan shall describe the measures to be used [t]o prevent adverse impacts.” Peabody did not assess the adverse impact of its mine plan on Bacavi or Old Oraibi, which is entitled to heightened scrutiny because it is a National Historic Landmark subject to the protection of Section 110 of the NHPA.

The regulation puts ultimate responsibility on OSMRE by giving it the authority to “require the applicant to protect historic or archaeological properties listed on or *eligible* for listing on the National Register of Historic Places through appropriate mitigation and treatment measures...” For the same reason, the application violates 30 CFR § 750.12(d)(2)(iii) and (iv), which specifically requires the applicant to follow the ACHP regulations by creating a plan to identify traditional cultural properties in the area of potential effects. Peabody has not complied with this provision.

²⁴ 30 CFR § 779.12(b)(2) I-iii

²⁵ While the SMCRA regulations give OSMRE discretion in this area, the Advisory Council on Historic Preservation’s (ACHP) regulations precatory language mandates comprehensive and assertive action from OSMRE in identifying traditional cultural properties. See discussion below.

A permit application must be "complete" to even merit consideration. "Completeness" is satisfied only if the applicant provides all "the information required under Parts 778, 779, and 780."²⁶ Peabody has failed to describe and identify traditional cultural properties that are listed in or eligible for the National Register. Peabody has failed to map those sites and develop appropriate reclamation plans. These omissions render its application incomplete.

PEABODY'S APPLICATION VIOLATES THE ADVISORY COUNCIL ON HISTORIC PRESERVATION REGULATIONS GOVERNING SECTION 106

Where OSMRE's Historic and Cultural Protection Are Inconsistent with The Updated Advisory Council On Historic Preservation, Section 106 Regulations, The Section 106 Regulations Must Prevail

In January 2001, ACHP, the body charged with promulgating rules under the (NHPA), issued its final rule clarifying the Section 106 process.

According to the ACHP, "the coordination of Section 106 review has raised a number of policy issues regarding the ability of the Office of Surface Mining to adequately meet the intent and spirit of historic properties, of Section 106" in the context of OSMRE-approved state regulatory schemes. The ACHP calls the "provisions for addressing Section 106 review for SMCRA permits" "inadequate." (www.achp.gov/casearchive/caseswin01PA.html "Archive" of Prominent Section 106 Cases: Pennsylvania: Permit Modification for Mining under the Thomas Kent, Jr., Farm")

36 CFR § 800 et seq

Timing

OSMRE is required to start the Section 106 process "early in the undertaking's planning."²⁷ To our knowledge, the Section 106 process has not yet begun, yet the comment period for SMCRA purposes closes on April 29, 2002.

36 CFR § 800.2(C)(5) and (3) REQUIRES OSMRE TO CONSULT WITH INDIVIDUALS AND ORGANIZATIONS WITH A DEMONSTRATED INTEREST IN THE UNDERTAKING AS WELL AS REPRESENTATIVES OF LOCAL GOVERNMENTS

Legal protocol and respect for the sovereignty of Native American tribes certainly require federal agencies such as OSMRE to consult with tribal governments. However, OSMRE's duty to consult does not end there; in acknowledgment of the diversity of opinion borne of culture, history and politics, 36 CFR § 800.2(C)(5) allows for the addition of other parties to the consultation process. Specifically, this provision opens the door to those "individuals and organizations with a demonstrated interest in the undertaking...due to...concern with the

²⁶ 30 CFR § 777.15

²⁷ 36 CFR § 800.1(c)

undertaking's effects on historic properties." That means organizations like Black Mesa Trust must be brought to the table. In addition, the provision entitling local government representatives to participate as consulting parties means that traditional religious leaders and village representatives should be invited in as consulting parties.

Similarly, *Bulletin 38* advises "that expertise in traditional cultural values may not be found, or not found solely, among contemporary community leaders." *Bulletin 38* cautions "[i]n some cases, in fact, the current political leadership of a community or neighborhood may be hostile to or embarrassed about traditional matters. As a result, it may be necessary to seek out knowledgeable parties outside the community's official political structure."²⁸

Lack of Coordination with Other Applicable Statutes

OSMRE's failure to coordinate its SMCRA process with other reviews violates both 36 CFR §800.3(b) and OSMRE regulations. The former requires the agency official to coordinate the steps of the section 106 process "with the overall planning schedule." Among the reviews requiring coordination are the National Environmental Policy Act ("NEPA")²⁹, the American Indian Religious Freedom Act ("AIRFA")³⁰, and the agency's own organic statute, the Surface Mining Control and Reclamation Act ("SMCRA").³¹

OSMRE's own regulation at 30 CFR § 773.5 requires it to "coordinat[e] ...review and issuance of permits for surface coal mining and reclamation with applicable requirements of...The National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.)...the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et. seq.), the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661 et. seq.), the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703 et seq); ...the Bald Eagle Protection Act as amended (16 U.S.C. 668a); for Federal programs only, the Archaeological Protection Act of 1979 (16 U.S.C. 470aa et seq) where Federal and Indian lands covered by that Act are involved."³²

Despite these mandates, the public has been denied the benefit of both the Section 106 process and NEPA process before having to submit comments on the Black Mesa Mine Permit Application.

36 CFR § 800.4 of the ACHP regulations, entitled "Identification of historic properties" begins by outlining the federal agency's obligation to identify historic properties within the area of potential effects, in the proposed federal undertaking:

²⁸ Bulletin 38, p. 8.

²⁹ 42 USC § 4321 et seq.

³⁰ 42 USC § 1996

³¹ 30 USC § 1201

³² 30 CFR § 773.5

(a)...the agency shall:

- (1) Determine and document the area of potential effects, as defined in § 800.16(d);
- (2) Review existing information on historic properties within the area of potential effects, including any data concerning possible historic properties not yet identified;
- (3) Seek information, as appropriate, from consulting parties, and other individuals and organizations likely to have knowledge of, or concerns with, historic properties in the area, and identify issues relating to the undertaking's potential effects on historic properties; and
- (4) Gather information from any Indian tribe or Native Hawaiian organization identified pursuant to § 800.3(f) to assist in identifying properties, including those located off tribal lands, which may be of religious and cultural significance to them and may be eligible for the National Register, recognizing that an Indian tribe or Native Hawaiian organization may be reluctant to divulge specific information regarding the location, nature, and activities associated with such sites. The agency official should address concerns raised about confidentiality pursuant to § 800.11(c)

Under the ACHP regulations, to which OSMRE is subject, OSMRE has an affirmative duty to identify the area of potential effects and seek out traditional cultural properties as well as other properties that may be eligible for the National Register of Historic Places. In recognition of the fact that "in most instances the effects of projects are felt by historic properties beyond the immediate footprint of a project,"³³ the "area of potential effects" is meant to encompass a broad area:

Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.³⁴

The N-aquifer, and the springs, wells and washes it feeds all fall squarely within the area of potential effects. As previously discussed, for most Hopis all of Black Mesa is an historic cultural property because Black Mesa is integral to the Hopi way of life.

³³ From discussion of this section in preamble to final rule. www.achp.gov/regspreamble.html, p.34

³⁴ 36 CFR § 800.16(d)

THE NATIONAL HISTORIC PRESERVATION ACT REQUIRES OSMRE TO MAKE A REASONABLE AND GOOD FAITH EFFORT TO IDENTIFY TRADITIONAL CULTURAL PROPERTIES³⁵

36 CFR § 800.4(b)(1) puts a heavy burden on OSMRE “to make a reasonable and good faith effort” to identify historic properties, which include traditional cultural properties. In *Pueblo of Sandia v. United States*, 50 F.3d 856 (10th Cir. 1995), the Tenth Circuit used the standard advocated in *Bulletin 38*: a reasonable effort “depends in part of the likelihood that such properties may be present. The likelihood that such properties may be present can be reliably assessed only on the basis of background knowledge of the area’s history, ethnography, and contemporary society.” At its most basic level, the authors of *Bulletin 38* advise agencies to consult with the people in the community who “ascribe cultural significance” to the area.³⁶ OSMRE need look no further than members of the Hopi Tribe and Navajo Nation who have been speaking out publicly about the cultural effects of N-aquifer pumping.

§ 800.4 gives concrete examples of what may be expected of an agency in carrying out a “reasonable and good faith effort.” “It may include background research, consultation, oral history interviews, sample field investigation, and field survey.” Among the things OSMRE must take into account are “the magnitude and nature of the undertaking and the degree of federal involvement, the nature and extent of potential effects on historic properties, and the likely nature and location of historic properties within the area of potential effects.”³⁷

OSMRE’S TRUST RESPONSIBILITY TO THE HOPI TRIBE AND NAVAJO NATION ELEVATES ITS DUTY TO PROTECT CULTURAL RESOURCES

The potential effects of an increase in pumping of the N-aquifer by over 30% when the aquifer is already showing sure signs of damage are enormous.³⁸ Indeed, the destruction of the only source of drinking water for an ancient desert tribe whose cultural basis is the reverence for water, is nothing short of catastrophic. OSMRE as part of the Department of the Interior and the Federal Government, has a fiduciary duty to safeguard the natural resources of Native American tribes.³⁹ Therefore, it is incumbent upon OSMRE to both engage in a meaningful search to identify springs that have dried up and to take seriously the suggestion that Black Mesa itself is eligible for listing in the National Register of Historic Places.

³⁵ 36 CFR § 800.4(b)(1)

³⁶ *Bulletin 38*, p. 6

³⁷ 36 CFR § 800.4

³⁸ See NRDC comments on Hydrogeology

³⁹ See Drawdown, and Black Mesa Trust comments on Trust Responsibility

OSMRE MUST APPLY THE ACHP CRITERIA FOR DETERMINING ADVERSE EFFECT TO BLACK MESA, THE N-AQUIFER AND SACRED SPRINGS

§ 800.5(1) states:

[a]n adverse effect is found when an undertaking *may* alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

There is no doubt that an increase in pumping the N-aquifer may alter the character of the aquifer, the springs and the whole of Black Mesa. The Hopi people believe that they were led by the great spirit Massau to Black Mesa and to the specific places where their ancestors built their villages because of the abundant source of pure water. The feeling and association with the story of Hopi origins and the underground water source is integral to the organizing principles of the Hopi belief system and way of life. Peabody readily admits the model it holds up as its best evidence that its extraction of N-aquifer water causes no damage, does not have the capability to evaluate effects on individual springs. Therefore, if OSMRE issues Peabody a permanent program permit or in any way allow an increase in N-aquifer pumping, Black Mesa, a sacred cultural landscape and the sacred springs that once flowed freely there would be adversely effect.

NEPA WILL BE VIOLATED IF OSMRE DOES NOT FULLY CONSIDER THE CULTURAL IMPACTS OF THE PROPOSED MINE PLAN REVISION

The National Environmental Policy Act (NEPA) requires environmental impact statements to "provide [a] full and fair discussion of significant environmental impacts."⁴⁰ The goal is to provide a thorough discussion so that the community is made aware of "the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." Ibid. The term "human environment" must be "interpreted comprehensively to include the natural and physical environment and the relationship of people with the environment."⁴¹

To satisfy NEPA requirements for determining the significance of an impact, OSMRE must consider "the unique characteristics of the geographic area such as proximity to historic or cultural resources...", and [t]he degree to which the action may adversely affect districts, sites, highways, structures, or objects listed

⁴⁰ 40 CFR § 1502.1

⁴¹ 40 CFR § 1508.14

in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources." 40 CFR 1508.27(b)(3) and (8).

This means that it is not enough for OSMRE to merely accept Peabody's descriptions of how it thinks it has complied with cultural resource law. Nor is it enough to look at potential cultural impacts on the proposed mining leaseholds. Rather, OSMRE must assess for "direct effects," as well as "indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."⁴² OSMRE must also consider the "cumulative impact" of Peabody's proposed increase in N-aquifer pumping and other aspects of the their application in tandem with the effects of past, present and foreseeable future use.⁴³

WATER IS LIFE TO THE HOPI AND NAVAJO PEOPLE

Ma'saw gave the Hopi an ear of corn-that's the mother, the soul, a planting stick, that's technology, and a gourd of water, that's the aquifer.⁴⁴

Water is central in Hopi cosmology. According to Hopi lore, the springs were "planted" in the land by deities or gifted individuals, their constant flow of water a reflection of the land's well-being and the Hopi's religious faith.⁴⁵ There is nothing more sacred to the Hopi than water as revealed, for example, by the sheer number of Hopi words and names that pertain to water.⁴⁶ For example, paa'u'uyupi means "spring planter, the special device used for planting springs. Kwaavaho spring, near Moenkopi is named after a 19th century Hopi who planted that spring.

Early anthropologists took notice of the Hopi reverence for springs:

In a general way every spring is supposed to be sacred and therefore a place for the deposit of prayer sticks and other offerings...[E]very spring is a place of worship and hence a shrine. (Fewes 1906:370-71)

⁴² 40 CFR § 1508.8

⁴³ 40 CFR § 1508.7

⁴⁴ Vernon Masayesva, explanation of Hopi origins.

⁴⁵ Drawdown, Ch. 2, p. 6, citing Peter Whiteley and Vernon Masayesva, "Paavahu and Paanaqawu: The Wellsprings of Life and the Slurry of Death," in *Cultural Survival Quarterly* (1996): p.2.

⁴⁶ Hopi dictionary-Hopiiwa Lavaytutveni: A Hopi-English Dictionary of the Third Mesa Dialect. "Maybe half of all Hopi names" may be connected to water. Quoted in Peter M. Whiteley and Vernon Masayesva, "Paavahu and Paanaqso'a-The Wellsprings of Life and the Slurry of Death" in "Rethinking Hopi Ethnography," Smithsonian Series in Ethnographic Inquiry, 1998 p.196. The discussion that follows is largely based on this article.

[N]o spring in the region is without evidence of many offerings to the deities of water... Sacred Springs may ...be regarded as alters, and the offerings as sacrifices, whose essence may be carried by the water. (Hough 1906:165)⁴⁷

Hopis believe that various water sources attract each other so that oceans, rivers, rain, aquifers and springs all act upon one another in a synergetic relationship. For Hopis, there is no division between water, the rest of the environment and the self. All is connected, with water playing an integral part in the individual and collective Hopi identity. Vernon Masayesva, Executive Director of Black Mesa Trust, former chair of the Hopi tribe and member of the Water Clan explains it this way:

Western science describes neat but unconnected layers of aquifers. Hopi see the water underneath us as a living, breathing world we call Patuwaaqatsi, or "water-life." Plants breath in moisture from the sky, and cloud people reciprocate by pulling the moisture to the plants' roots. Hopi believe that when we die we join the cloud people and join in their journey home to Patuwaaqatsi; and so all Hopi ceremonies are tied to the water world, and all the springs along the southern cliffs of Black Mesa serve as religious shrines or passageways to water-life.⁴⁸

Springs and groundwater are home to Paaloloqangw, the "Plumed Water-Snake," the central deity in Snake and Flute ceremonies. During the Flute ceremony the Lenmongwi, the head of the Flute society dives to the bottom of a very sacred spring to offer prayer sticks to Paaloloqangw. Springs and their environs play key roles during Powamuy ("Bean Dance") and Niman ("Home Dance"). The whole spring area is sacred so that people utilize clay, reeds and spruce branches to bring the power of the spring to the village. Hopi routinely make 100 mile pilgrimages to bring back water from particular sacred springs.⁴⁹

Spring water is used on a daily basis, to bless fields and to welcome babies into the world. Hopis regularly offer blessing at springs as they happen upon them. Certain springs are associated with certain clans, migrations and villages. "In this sense, then the living springs embody Hopi history: They are cultural landmarks, inscribed with significance, and commemorative reminders of the continuing legitimacy of clan rights and interests in specific areas."⁵⁰

Hopi Tribe member Marilyn Masayesva, testifying to value of Hopi water remarked, "the water is priceless. No amount of compensation can replace the source of life for the Hopi and Navajo people."⁵¹ In addition to the moral crisis posed by this water loss, Peabody's obligation to adequately fund a reclamation

⁴⁷ Quoted in Peter M. Whiteley and Vernon Masayesva, "Paavahu and Paanaqso'a-The Wellsprings of Life and the Slurry of Death" in "Rethinking Hopi Ethnography," p.193. The discussion that follows is largely based on this article.

⁴⁸ "Water Life: An Interview with Vernon Masayesva at www.nrdc.org/water/conservation/ivmblmesa.asp

⁴⁹ *Opp. Cit.* P. 193.

⁵⁰ *Ibid.* p.195.

⁵¹ Quoted in Judith Nies, "The Black Mesa Syndrome: Indian Lands, Black Gold," in *Orion*, Summer 1998.

performance bond for a priceless, irreplaceable cultural resource is seriously called into question.⁵²

EVIDENCE OF ADVERSE IMPACTS TO SPRINGS⁵³

Reports of decreased water output from sacred springs and washes are commonplace on Black Mesa. A 1993 study found significant decline in several springs sacred to the Hopi. "Little Burro Spring and Burro Spring, sources of water for Hopi Grey Flute Society ceremonies, were depleted, as were the springs at Rock Ledge, Moenkopi, [Rock Coyote] and Pasture Canyon."⁵⁴ Other springs cited in "Drawdown" as suffering decreased flows include Many Farms, Whiskey, and Shonto.⁵⁵

Accounts from individual Hopis and Navajos underscore the quantitative data. For example, Bertram Tsavadawa, is a Hopi currently living on Second Mesa, but originally from Oraibi. He's been giving walking tours on the Hopi Reservation, including in Old Oraibi for 8½ years. His family is from the Corn clan and his father-in-law is from the Water clan. Mr. Tsavadawa has seen first hand the effects on the springs. There were two springs on Oraibi but they are now dry. (See conversation below about Old Oraibi). Likewise, Toreva Spring is dry, too. Another dry Second Mesa spring is Huwehpami ("morning dove") Spring. Mr. Tsavadawa's friend once used the spring to water his crops, but now it has run dry.⁵⁶

The Cumulative Hydrological Impact Assessment (CHIA) is supposed to be a measure of the health of the aquifer. CHIA criterion three set a standard by which to assess material damage to Hopi springs. According to this criterion (created by OSMRE), a decrease in spring water levels by 10% or more as a result of all mine-related activities indicate material damage to the N-aquifer. The actual data collected by both Peabody and the U.S. Geological Survey show the kind of decline indicative of material harm. Rather than rely on the actual data, OSMRE has relied on flawed computer models.⁵⁷

Peabody admits in its updated Probable Hydrological Consequences (PHC) analysis that its numerical model cannot even begin to predict flow or lack thereof to individual springs. Rather, it purports "to make intelligent observations" (otherwise known as educated guesses) about regional flow.⁵⁸ It is both

⁵² See comments on The Reclamation Performance Bond, submitted by Lawyers Committee and Shearman and Sterling.

⁵³ See BMT comment submitted by NRDC for detailed hydrogeological analysis. See also comments from FEIS, 1990).

⁵⁴ (Drawdown, Ch. 1, p. 6, citing Foster Associates, Inc., Study of Alternatives to Transport Coal, pp. E-7, E-9, E-12-15).

⁵⁵ *Ibid.*

⁵⁶ Telephone Interview, April 17, 2002

⁵⁷ See Drawdown Ch. 1

⁵⁸ Peabody Application, Chapter 18, pp. 39-40.

scientifically inadequate and culturally inappropriate to substitute an admittedly incomplete model which by definition is hypothetical, for observed decreases in flow at sacred springs that have already adversely impacted Hopis and Navajos. The inability of the PHC model to predict impacts to individual springs, renders Peabody's PHC and consequently, its application incomplete.⁵⁹ Moreover, on account of OSMRE's trust responsibility to the Hopi and Navajo people, which includes safeguarding the tribes' natural and cultural resources, OSMRE cannot issue a permanent program permit to Peabody because Peabody cannot say with any certainty that its activities will not adversely affect those resources.

PEABODY FAILED TO SUBMIT THE REQUIRED ASSESSMENT OF ITS CONTINUING AND INCREASING N-AQUIFER PUMPING ON PLACES ALREADY LISTED IN THE NATIONAL REGISTER OF HISTORIC PLACES

OLD ORAIBI- A NATIONAL HISTORIC LANDMARK ENTITLED TO HEIGHTENED PROTECTION

Old Oraibi was designated a National Historic Landmark in 1964 because of its distinction as the oldest continuously inhabited village in the United States.⁶⁰ This designation is reserved for a select few places listed in the National Register. Section 110 of the NHPA requires federal agencies, such as OSMRE to take even more care than usual to prevent harm to national historic landmarks. Peabody has not even considered the effects of pumping on Old Oraibi, although accounts by individuals Hopis describe dry springs, which are attributable to Peabody's pumping. (See previous discussion of Bertram Tsavadawa's eyewitness account).

BACAVI

Hopis are renown worldwide for their ingenious farming techniques. In fact, the village of Bacavi is listed on the National Register of Historic Places in large part because of its famed terrace farms, which were traditionally fed by Bacavi's five springs. At least one of those springs, the one lying lowest in the canyon, is in danger.⁶¹ It has had uncharacteristic fluctuations in recent years; it dried up entirely two years ago. This is not only cause for alarm, but it triggers OSMRE's duty to "take into account" the negative consequences that a massive increase in water pumping will have on Bacavi, as a listed place on the National Register.⁶²

Bacavi's proper name is Paaqavi which literally means reed "[b]ut more importantly, "paaqavi" is a Hopi word that describes a special place. "Paaqavi" is a natural spring on the Hopi Indian Reservation where bamboo and reeds grow.

⁵⁹ 30 CFR § 777.15

⁶⁰ See The National Historic Landmark database, and www.3mesas.com/hopi/main.html

⁶¹ Conversation with Leigh Kuwanwisiwma, April, 2002.

⁶² 30 CFR § 773.15(k)

The story is told that the Hopi people emerged into this fourth world through the paaquavi and thus it became the clan totem of the paaquavi clan." (www.channel1.com/users/brown/history.html)

As the federal agency charged with deciding whether to issue a surface coal mining permit, OSMRE must base its decision on its own analysis of information provided in the Peabody permit application or "from information otherwise available that is documented in the approval."⁶³

OSMRE may only issue Peabody a permit if it makes *written findings* that it "has taken into account the effect of the proposed permitting action on properties listed on and eligible for listing on the National Register of Historic Places."⁶⁴ OSMRE has not taken such an accounting and therefore cannot support such findings.

**OSMRE MUST ASSESS THE PERMIT AREA TO SEE IF IT CONSTITUTES
"LAND UNSUITABLE FOR MINING"**

Section 522(a)(3)(B) of SMCRA authorizes regulatory authorities to determine that an area is unsuitable for all or certain types of coal mining if it would affect fragile or historic lands in which such operations could result in significant damage to important historic, cultural, scientific, and esthetic values and natural systems.⁶⁵ Although the determination of "valid existing rights" by an applicant may exempt the applicant from this provision, the circumstances surrounding Peabody's acquisition of its mining leases were anything but "valid."

It is now well-established that John Boyden, the attorney who negotiated "on behalf" of the Hopi Tribe, was simultaneously representing Peabody. Moreover, Boyden had convinced the Bureau of Indian Affairs to confirm him as General Counsel for the tribe, despite much objection. Boyden used his new power to manipulate the Hopi and ultimately create a Hopi Tribal Council that would favor coal interests over the more popular concern for Hopi culture and sovereignty.⁶⁶

This sham process calls into question the very basis of Peabody's right to be mining water on Black Mesa. OSMRE should study this matter further and consider this history and context in making its decision about the Peabody permit.

⁶³ 30 CFR § 773.15

⁶⁴ 30 CFR § 773.15(k)

⁶⁵ 30 CFR § 761 et seq.

⁶⁶ See "Drawdown," Ch.2 which cites to several authoritative books on the subject, including, Charles Wilkinson, "Fire on the Plateau," Clemmer "The Road in The Sky," Benedek, "The Wind Won't Know Me."

THE AMERICAN INDIAN RELIGIOUS FREEDOM ACT REQUIRES THE GOVERNMENT TO PROTECT PLACES INTEGRAL TO AMERICAN INDIAN RELIGIOUS FREEDOM

AIRFA⁶⁷ was passed to guarantee to Native Americans the ability to exercise their traditional religions. For a traditional Hopi or Navajo, the damage being caused to Black Mesa water is akin to damaging a church. Or, as one Hopi explained to this Jewish writer as we stood over the place where Moenkopi wash once flowed freely, "we don't go to a building to pray. This is our temple. Having our water taken is like someone coming into your temple and taking your Torah."⁶⁸ For Christians, it would be akin to stealing the waters from the baptismal fountain.

OSMRE HAS AN OBLIGATION TO ABIDE BY THE EXECUTIVE ORDER ON NATIVE AMERICAN SACRED SITES AND THE EXECUTIVE ORDER ON ENVIRONMENTAL JUSTICE⁶⁹

The Executive Order on Indian Sacred Sites,⁷⁰ was created to ensure that federal agencies, such as OSMRE are responsive to the concerns of Native Americans regarding their sacred sites. One of the goals of the Executive Order is to "avoid adverse effect on the physical integrity of such sacred sites."⁷¹ Although the letter of the law pertains to federal lands rather than Indian lands, the spirit of the law evinces an intent to respect sites held sacred by Native Americans. OSMRE should bear this in mind during its evaluation of the Peabody permit.

INTERNATIONAL HUMAN RIGHTS LAW BEHOOVES OSMRE TO DO EVERYTHING IN ITS POWER TO SAFEGUARD BLACK MESA WATER

The United Nations Draft Declaration on the Rights of Indigenous Peoples affirms the rights of indigenous peoples "to strengthen their distinctive spiritual and material relationship with the lands, territories, [and] waters...which they have traditionally owned or otherwise occupied or used, and to uphold their responsibilities to future generations." (Draft United Nations Declaration on the Rights of Indigenous People (August 26, 1994, art. 25 at 552 (reprinted in International Legal Materials 34 (1995): p. 541) quoted in Drawdown, Ch. 2, p.6).

In the same spirit, the International Covenant of Civil and Political Rights, ratified by the United States asserts the right to "manifest religion or belief in worship, observance, [and] practice." (International Covenant on Civil Right and Political Rights, General Assembly Resolution 2200A (XXI)(Dec. 16, 1966, entry into force Mar. 23, 1976), art. 18 (reprinted in Center for Human Rights, *Human*

⁶⁷ 42 U.S.C. 1996

⁶⁸ Conversation with Leonard Selestewa, December, 2001

⁶⁹ See Lawyers Committee Notes on Environmental Justice

⁷⁰ Executive Order 13007, 61 Fed.Reg. 26,771(1996)

⁷¹ <http://hydra.gsa.gov/pbs/pt/call-in/factsheet/0498/0498fact.htm>

Rights: A Compilation of International Instruments (New York: United Nations, 1988)(U.N. Sales No. E. 88 XIV. 1), p. 26. The Covenant was ratified by the United States on September 9, 1992. See Public Notice 1853, Federal Register 54 (1993): p. 45934, quoted in Drawdown, Ch.2, p. 6).

CONCLUSION

OSMRE must deny Peabody's application for a permanent program permit and permit revision because of the harm that continues to be caused to Hopi and Navajo traditional cultural properties by the pumping of N-aquifer water. If OSMRE follows both the letter and the spirit of all applicable cultural resource and environmental laws, it will come to the only just conclusion—to deny Peabody's permit. The Hopi and Navajo people are relying on OSMRE to exercise its trust responsibility and safeguard the sacred land and waters of Black Mesa.

American Museum of Natural History 

Division of Anthropology

April 22nd, 2002

Jerry D. Gavette
 Black Mesa-Kayenta Mines Team Leader
 Office of Surface Mining
 1999 Broadway, Suite 3320
 Denver, CO 80202-5733

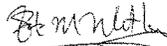
Dear Mr. Gavette:

I write to express my concern about the proposed plan for Peabody Western Coal Company to increase water withdrawal from the Navajo Aquifer for the slurry pipeline to the Mohave Generating Plant. I am a cultural anthropologist, who has worked extensively in Hopi Reservation communities over the last twenty-two years (see, for example, my *Rethinking Hopi Ethnography*, Smithsonian Institution Press, 1998).

As you know, Hopi opposition to *any* continued pumping from the Navajo Aquifer has been very clearly expressed, especially in and since the Hearings on the Environmental Impact Statement for the Black Mesa-Kayenta Mine Proposed Permit Application of 1990. Hopi arguments that the pumping is seriously impacting their water supply, for now and for the future, are well supported by independent hydrological assessments. More than this, the threat to Hopi water has a direct and devastating impact on the persistence of Hopi culture itself: much Hopi natural-historical knowledge, and many Hopi religious ideas, ritual practices, social values, and aesthetic forms focus centrally on springs, rain, and ground-water, as the very source of life - human, animal, and vegetable. Attached please find an article I co-authored with Vernon Masayesva summarizing the cultural and hydrological issues ("The Use and Abuse of Aquifers: Can the Hopi Indians Survive Multinational Mining?") from *Water, Culture and Power: Local Struggles in a Global Context*, Island Press, 1998).

The proposal to increase pumping N-Aquifer water from 4,400 acre-feet per year to 5,700 acre-feet per year ignores the legitimate concerns of the majority of Hopi people. The Hopi have plausible fears that any continued pumping may constitute a major threat to their future life and livelihood. Further increasing the amount of water taken for the slurry from the N-Aquifer will only exacerbate that threat. I urge you to reject this proposal, and to develop and promote viable alternatives to the present means of transporting the coal to the Generating plant.

Sincerely



Peter M. Whiteley
 Curator in North American Ethnology

Thomas F. King, PhD

410 Windsor Street, Silver Spring, MD 20910-4242

Telephone (301) 585-9572 Facsimile (301) 589-5049 E-mail tfking106@aol.com

Cultural Resource Impact Assessment and Negotiation, Archaeology, Writing, Training

April 17, 2002

Mr. Jerry Gavette
Office of Surface Mining Reclamation and Enforcement
1999 Broadway, suite 3320
Denver, CO 80202-5733

Subject: Peabody Western Coal Co. Permit Application

Dear Mr. Gavette:

I am writing to offer comments on Peabody Western Coal Company's application for a permit to expand its mining operations on Black Mesa. My comments related particularly to the manner in which OSM will comply with Section 106 of the National Historic Preservation Act in considering Peabody's application, and how it will address related legal requirements, notably the National Environmental Policy Act, the Native American Graves Protection and Repatriation Act, the American Indian Religious Freedom Act, and Executive Order 12898.

As you know, Section 106 requires that OSM take into account the effects of issuing the permit on historic resources – that is, districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. This "taking into account" involves following the regulatory direction set forth by the Advisory Council on Historic Preservation at 36 CFR 800. There are some discrepancies between the Advisory Council's regulations and OSM's. Since the former have recently been revised to comport with the 1992 amendments to the National Historic Preservation Act, and since they are the government-wide standards for Section 106 compliance, I assume that where there is a discrepancy with OSM's regulations, the Advisory Council's regulations will prevail.

Section 106 review is carried out in the broader context of project review under the National Environmental Policy Act (NEPA), whose implementing regulations require that the significance of impacts on the cultural environment be addressed not only with reference to the historic resources that are the subjects of Section 106 review, but on other cultural and scientific resources as well (See 40 CFR 1508.27(b)(3) and (8)). Executive Order 12809 requires that special attention be

given to cultural resources (among other aspects of the environment) of importance to low income and minority groups. The American Indian Religious Freedom Act (AIRFA) provides for special attention to be given to Indian tribal religious concerns, and the Native American Graves Protection and Repatriation Act (NAGPRA) requires that the potential for disturbance to ancestral Native American graves and cultural items be considered in consultation with culturally affiliated tribes. Finally, of course, OSM shares the Federal government's general fiduciary responsibility to protect tribal trust assets.

My strong recommendation to you, based on some thirty-five years practice in cultural resource management, is not to approach each of these requirements separately, but to try to deal with them in a comprehensive manner. All the requirements overlap with one another, and all require – either explicitly or by implication – consultation with concerned and affected parties, such as the Hopi and the various organizations concerned about Black Mesa and the N-aquifer. I hope that you will without delay undertake serious consultations with all concerned parties in accordance with the Section 106 and NAGPRA regulations, with reference to the standards established by Executive Order 12898 to ensure full participation by low-income and minority groups.

The Section 106 regulations require that OSM, in consultation with pertinent State and Tribal Historic Preservation Officers (SHPOs and THPOs), Indian tribes, and other interested parties, establish the “area of potential effects” of the proposed mine expansion. Considering the widespread projected water-related impacts of the project, it seems likely that at least the Arizona and New Mexico SHPOs should be consulted, together with at least the Hopi and Navajo THPOs. The “area of potential effects” must include all areas subject to potential direct, indirect, and cumulative impacts, including visual, auditory, and other effects (See 36 CFR 800.5(a)(1) and .16(d)). The necessary inclusiveness of the area of potential effects may not be fully understood by Peabody, which has a long history of supporting archeological research on its lease and as a result may tend to equate “effect” with the sort of physical effect that is of prime concern to archeologists.

Within the area of potential effects, the regulations require that a “reasonable and good faith effort” be made to identify historic resources. Such resources, of course, include both places already included in the National Register of Historic Places and those that meet the criteria for inclusion in the Register (36 CFR 60.4). Here again it is possible that Peabody may interpret OSM's responsibilities too narrowly, focusing overmuch on archeological sites. Archeological sites are important, of course, but traditional cultural places, often including expansive landscapes of cultural and spiritual value to Indian tribes, must also be considered and may in many ways be far more important. Natural features like buttes, springs, rock outcrops, and cliffs may be significant traditional cultural places. At the same time, under other authorities it is necessary to consider impacts on broader types of cultural resources, such as Hopi and Navajo ways of life and

religious beliefs, and on such specific resources as Native American graves and cultural items.

I suggest that it would be most realistic, and efficient, to regard the entire Black Mesa area as a landscape/district that is eligible for the National Register. There is little doubt in my mind but that it has such significance in the eyes of Hopi elders and traditionalists, and I think it would save all concerned a great deal of time and trouble simply to acknowledge this fact and move on to considering the effects of the mine expansion on the eligible resource. It also strikes me that the N-aquifer almost certainly contributes to the area's eligibility, inasmuch as it charges the springs that are of critical importance in the traditional Hopi way of life and religion. Those ways of life and religious concerns are certainly "cultural resources" within the meaning of 40 CFR 1508.27(b)(3) and (8), and must be considered under AIRFA as well.

Having established that an eligible resource (Black Mesa) will be affected, OSM is next required to consider the proposed expansion's potential adverse effects on the resource – again in consultation with all concerned parties. Here, of course, cultural resource impacts run together with impacts on natural resources, all involving possible drawdowns on the N-aquifer. The broad-based, face-to-face, good-faith consultation provided for by the Section 106 and NAGPRA regulations may provide an ideal forum in which to hash out whether these impacts will occur, how serious they may be, and what if anything can be done about them. As you know, such consultation under Section 106 leads either to a Memorandum of Agreement or to a comment by the Advisory Council that the Secretary considers before making a final decision on the action.

In summary, what I am urging is that you promptly initiate broad-based consultation with all concerned parties about the impacts of the proposed expansion under all the pertinent cultural resource legal requirements, that you define the area of potential effect broadly enough to embrace all potential direct, indirect, and cumulative effects, that you consider the entire Black Mesa landscape to be eligible for the National Register for purposes of Section 106 review, and that you continue to consult with everyone concerned about the possible impacts of the expansion and possible means of impact mitigation.

Thank you for the opportunity to comment.



Thomas F. King, PhD



**Lawyers' Committee for
Civil Rights Under Law**

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Mr. Jerry D. Gavette
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

Mr. Gavette,

On behalf of the Lawyer's Committee for Civil Rights Under Law ("Lawyers' Committee"), the Black Mesa Trust and each of its directors individually, the Natural Resources Defense Council ("NRDC"), and the Sierra Club, we submit the following comments and objections to the January 17, 2002 Peabody Western Coal Company request to the Office of Surface Mining to lift the administrative delay on the Permanent Program Permit or life-of-the-mine permit for the Black Mesa Mine and for approval of Peabody's request to incorporate the mining sequence for the J-23 coal reserve area in the BM2P3 application.

These are only one part of the comments being submitted to the Office of Surface Mining ("OSM") on behalf of the organizations listed above. We incorporate by reference into our comments and objections those which are also being filed by the Black Mesa Trust, NRDC, and the Sierra Club under separate cover, including all of the exhibits attached to each of the comments. Our comments and objections are submitted pursuant to 30 C.F.R. § 773.6(b) and we request that OSM consider these comments and objections and the attached exhibits when determining whether to issue the permit. In addition, we request and expect that OSM will also consider the materials referenced by our comments and by the comments of Black Mesa Trust, NRDC, and the Sierra Club which, although not attached as exhibits, are materials publicly available.

The Lawyers' Committee is a national civil rights organization formed in 1963 to involve the private bar in assuring the rights of all Americans. For thirty-nine years, the Lawyers' Committee has represented victims of discrimination in virtually all aspects of life. In 1991, the Lawyers' Committee formed its Environmental Justice Project to represent communities of color in environmental and civil rights matters. We use the rule of law to challenge environmentally discriminatory conditions and decisions – and ultimately – to seek justice for people of color who are fighting to clean up contamination on the land where they live or who are fighting to

LAWYERS' COMMITTEE FOR CIVIL RIGHTS UNDER LAW

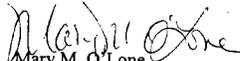
stop environmentally harmful activities from occurring in their neighborhoods. The Lawyers' Committee has partnered with the law firm of Shearman and Sterling to provide pro bono representation to the Black Mesa Trust for issues related to the Black Mesa Mine and the Navajo Aquifer ("N-Aquifer"). Our comments are drawn from the Lawyers' Committee's long and varied experience with the administration and application of the nation's civil rights laws, including within the environmental context.

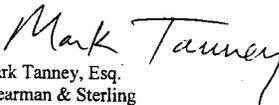
The Black Mesa Trust is a non-profit, tax-exempt educational and public advocacy organization headquartered on the Hopi Reservation. Many of the members of the Board of Directors of the Black Mesa Trust live on the Hopi Reservation. The Black Mesa Trust develops traditional and non-traditional teaching and learning opportunities to help Hopi and Navajo people understand issues and findings which bear on the well-being of the N-Aquifer, as well as steps they can take to protect this critical resource and preserve those aspects of Hopi and Navajo life that depend upon it.

NRDC is a national nonprofit environmental organization that uses law, science, and the support of its more than 500,000 members nationwide to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. NRDC works to foster the fundamental right of all people to have a voice in decisions that affect their environment. It also seeks to break down the pattern of disproportionate environmental burdens borne by people of color and others who face social or economic inequities.

The Sierra Club is a national nonprofit environmental organization founded in 1892. It now has more than 700,000 members. The Arizona Chapter of the Sierra Club has over 11,000 members. The Colorado Plateau Group of the Sierra Club has over 700 members, 100 of whom live on or near Black Mesa. Since 1992, the Sierra Club's Environmental Justice Campaign has worked in partnership with communities of color and low-income communities on local environmental, health, and justice issues. The law firm of Hagens Berman & Mitchell is providing pro bono representation and submitting comments on behalf of the Sierra Club and the organizations listed above.

Thank you for the opportunity to provide written comments. We submit them for inclusion in the record being developed by OSM. Please do not hesitate to contact me if you have any questions or if we can provide any further assistance in this matter. I can be reached at (202) 662-8600.


Mary M. O'Lone
Environmental Justice Project Director


Mark Tanney, Esq.
Shearman & Sterling

Attachments

LAWYERS' COMMITTEE FOR CIVIL RIGHTS UNDER LAW

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**COMMENTS AND OBJECTIONS TO J-23 LIFE-OF-MINE (LOM) MINE PLAN/
BLACK MESA PERMANENT PROGRAM PERMIT (BM2P3) APPLICATION
SUBMITTED BY PEABODY WESTERN COAL COMPANY**

I. BACKGROUND AND INTRODUCTION

“The Black Mesa Mine is currently authorized to operate by the OSMRE under Initial Program Permit AZ-0001 and the administrative delay provisions of 30 C.F.R. 750.11(c).” Letter to Jerry Gavette, Office of Surface Mining Reclamation and Enforcement, from Randy Lehn, Manager Reclamation & Engineering, Black Mesa Mine, Peabody Western Coal Company, dated August 10, 2001, at 1. (“Peabody August 10, 2001 letter”). Permit AZ-0001 was issued on January 29, 1982. Peabody Western Coal Company, “Mining and Reclamation Plan Black Mesa and Kayenta Mines” (“Permit Application”), Chapter 1, at 1 (Revised 07/01/97). Since Permit AZ-0001 was issued before the promulgation of the permanent Indian land SMCRA regulations, Peabody filed another application for a permit on October 31, 1984 incorporating the information in the 1982 permit. On July 10, 1985, OSM authorized Peabody to operate after May 28, 1985 in the AZ-0001 permit area. *Id.*, Chapter 1, at 1 (Revised 07/01/97).

In the mid-1980s, Peabody submitted a life-of-the-mine mining plan and applied for permit approval for the entire Black Mesa Complex. *Id.*, Chapter 1, at 1 (Revised 07/01/97). However, OSM’s “decision on issuance of a permit under the Indian lands permanent regulatory program has been administratively delayed by the Secretary of the Department of Interior [consistent with the Federal regulations at 30 CFR 750.11(c)] due to ongoing discussions concerning the Little Colorado River litigation.” http://www.wrcc.osmre.gov/BlkMsaQ&A/background_black_mesa.htm. Thus, the Kayenta Mine operates under Permanent Program Permit AZ-0001 and the Black Mesa Mine operates under Interim Program Permit AZ-0001. Permit Application, Chapter 1, p. 2 (Revised 01/15/02).

In its letter requesting a revision to the Black Mesa Mine Permanent Program Permit (BM2P3) Application dated January 17, 2002, Peabody requests approval to incorporate the mining sequence for the J-23 coal reserve area (“permit revision”) in the BM2P3 application. Letter to Jerry Gavette, Office of Surface Mining Reclamation Enforcement, from Randy Lehn, Manager Reclamation & Engineering, Black Mesa Mine, Peabody Western Coal Company dated January 17, 2002, (“Peabody January 17, 2002 letter”), at 1. Peabody estimates with approval of the revision, the life of the Black Mesa Mine will be extended until 2016 with almost 61.4 million tons of coal produced between 2005 and 2016. Peabody projects that withdrawals of ground water from the N-Aquifer will increase from 4,400 acre-feet to 5,700 acre-feet annually.

Peabody requests both approval of the permit revision and the lifting of the administrative delay on the life-of-the-mine permit by January 2004. Moreover, Peabody requests that OSMRE “limit its review to only the materials in the application that are changing as a result of this and the August 10, 2001 submittals.” *Id.*, at 1.

The following comments and objections are divided into seven sections. Section I has provided background and introductory information (p. 1). Section II objects to the premature closing of the public comment period on the grounds that the Permit Application is not yet administratively complete (p. 2). Section III argues for the identification of Peabody Energy

Lawyers' Committee *et al.* Comments on Peabody Mining Application
 April 26, 2002
 Page 2

Company as the true applicant and the review of the Permit Application on that basis (p. 11). Section IV addresses deficiencies in the reclamation performance bond proposed in the Permit Application (p. 17). Section V argues that the Permit Application should be denied until surface water impoundment violations at the Black Mesa Mine complex are abated (p. 24). Section VI addresses procedural defects in the permitting process and associated environmental justice issues arising from the Permit Application (p. 28). The Conclusion is Provided in Section VII (p. 37).

II. CLOSING OF THE PUBLIC COMMENT PERIOD IS PREMATURE BECAUSE PEABODY'S PERMIT APPLICATION IS NOT ADMINISTRATIVELY COMPLETE

The regulatory regime established in Chapter VII of Title 30 of the Code of Federal Regulations establishes clear requirements for the closing of public comment periods. These regulations require that, before OSM can close a public comment period on a surface coal mining permit application, an applicant must have submitted an administratively complete application and after doing so have met specified public notice requirements. With respect to the Permit Application for Surface Coal Mining Operations on Black Mesa and Kayenta Mines submitted by Peabody Western Coal Company (the "Permit Application"), the Office of Surface Mining Reclamation and Enforcement ("OSM") has determined that the public comment period will close on April 29, 2002. However, none of the regulatory requirements for closing the comment period have been met with respect to the Permit Application. As a result, the deadline for closing the public comment period on the Permit Application that OSM has imposed is not grounded on any statutory or regulatory requirements, and it is therefore not only premature, but also arbitrary and capricious. To remedy this clear error, OSM should extend the public comment period until the requirements of Chapter VII of Title 30 of the Code of Federal Regulations for closing public comment periods on surface coal mining permit applications have been met.

A. Under the Regulations, the Public Comment Period Cannot Close Before the Permit Application is Administratively Complete

The Surface Mining Control and Reclamation Act of 1977 ("SMCRA"), 30 U.S.C. Section 1231, et seq., sets forth the requirements for all applications for permits to mine surface coal on Indian lands. The regulations implementing SMCRA are set forth in 30 C.F.R. §§ 700 to end.¹

The regulations governing the permitting of surface coal mining and reclamation operations, 30 C.F.R. §§ 700 to end, establish a precise sequence of events that must occur before the time is ripe to close the public comment period for a surface coal mining permit application. First, an application must be administratively complete. 30 C.F.R. § 773.6(a)(1) (making public notice of the permit application effective only "[u]pon submission of an

¹ Subchapter E of Title 30, Parts 750 *et seq.*, provides for the regulation of surface coal mining and reclamation on Indian lands. 30 C.F.R. § 750.1. Subchapter E incorporates certain sections of Subchapter G, Parts 772 *et seq.*, regarding permit applications, 30 C.F.R. § 750.12, and all of Subchapter J, Parts 800 *et seq.*, regarding bonding, 30 C.F.R. § 750.17.

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administratively complete application"). Once an application is administratively complete, the permit applicant then may proceed to meet certain requirements for providing effective notice to the public that it has submitted a complete permit application. *Id.* These required steps include a requirement that the applicant "place an advertisement in a local newspaper of general circulation in the locality of the proposed surface coal mining and reclamation operation at least once a week for four consecutive weeks." *Id.*² Persons who have adversely affected interests then have thirty days from the fourth consecutively weekly publication of such a notice to submit such written comments and objections. See 30 C.F.R. § 773.6(b) ("Written objections to an application . . . may be submitted to the regulatory authority by any person having an interest which is or may be adversely affected by the decision on the application . . . within 30 days after the last publication of the newspaper notice required by paragraph (a) of this section.>").

The purpose underlying this regime is to afford "any person having an interest which is or may be adversely affected by the decision on the application" to submit written comments or objections to the application. See 30 C.F.R. § 773.6(b)(1). Sensibly, the regime recognizes that for such comments or objections to be meaningful the permit application must be administratively complete so that it contains all the information necessary for effective administrative and public review. See 30 C.F.R. § 773.6(a) (conditioning public notice on an administratively complete application). The regime also recognizes the need for effective public notice so that any person with an adversely affected interest is afforded an opportunity to learn that his or her interest is adversely affected. See generally references cited below in Section VI addressing Procedural and Environmental Justice Issues. Not requiring administrative completeness and effective public notice before the closing of the public comment period infringes the rights of persons whose interests are adversely affected. The absence of required information from the permit application and ineffective public notice each prevent such persons from becoming aware of, and therefore from being able to comment on or object to, aspects of the proposed operations that are adverse to their interests. Indeed, in many instances the absence of certain information might prevent a party from being capable of recognizing at all that she or he has an adversely affected interest.

Thus, unless an applicant has submitted an administratively complete application to OSM, an applicant cannot complete the steps required for providing effective public notice of its permit application. Absent completion of these steps, the 30-day clock on public comments cannot start. As noted, the adequacy of the public notice, public participation process, and access to information associated with this Permit Application are discussed more fully below in Section VI addressing Procedural and Environmental Justice Issues.

B. The Permit Application Is Not Administratively Complete

SMCRA and the regulations set forth in 30 C.F.R. § 700 to end, require applicants to provide certain information regarding violations of environmental laws to the Office of

² It is important to note that these particular requirements that trigger the countdown to the end of the public comment period represent only a portion of a permit applicant's obligations with respect to providing effective public notice. Additional public notice requirements are discussed more fully below in the section on Procedural and Environmental Justice Issues.

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Surface Mining Reclamation and Enforcement ("OSM") and condition the granting of a mining permit upon this and other information available to OSM.

Chapter VII of Title 30 of the Code of Federal Regulations establish a clear standard for completeness: an "administratively complete application" must contain "information addressing each application requirement of the regulatory program" and "all information necessary to initiate processing and public review." 30 C.F.R. § 701.5. Included in the application requirements is the requirement that the application "shall include at a minimum . . . the information required under parts 778, 779, and 780" of Chapter VII of Title 30 relating to legal, financial, compliance, environmental resource, reclamation, operational and other general information. 30 C.F.R. § 777.15 (emphasis added). The burden to demonstrate that a permit application meets this requirement is on the applicant. *See* 30 C.F.R. § 773.7 ("The applicant for a permit or revision of a permit shall have the burden of establishing that his application is in compliance with all the requirements of the regulatory program.").

As shown below, the Permit Application submitted for the Black Mesa and Kayenta Mines falls far short of the requirements for administrative completeness under 30 C.F.R. §§ 701.5 and 777.15. The Permit Application fails to address each application requirement of the regulatory program, particularly the minimum information required under 30 C.F.R. §§ 778-780. Nor does the Permit Application contain all the information necessary to initiate processing and public review. As a result, the applicant has failed to meet its burden of demonstrating that its application is complete.

1. The Permit Application Does Not Meet the Minimum Standard for Legal, Financial, Compliance, and Related Information under Part 778

The Permit Application does not meet the minimum standard for legal, financial, compliance, and related information under 30 C.F.R. § 778. The Permit Application does not provide information addressing each application requirement under 30 C.F.R. § 778. Nor does the Permit Application provide all information necessary to initiate processing and public review with respect to these requirements.

First, although the Permit Application was submitted to OSM by Peabody Western Coal Company, the Permit Application does not clearly identify which Peabody entity purports to be the applicant and therefore does not provide the identifying information about the applicant required by the regulations. *See* 30 C.F.R. § 778.11. As a result, the Permit Application does not provide any of the information regarding the applicant required under Part 778 of C.F.R. Title 30 in a manner sufficient for review by OSM or by the public. In particular, the Permit Application fails to provide the following information required under 30 C.F.R. § 778.11:

- Applicant's name, address, and telephone number, 30 C.F.R. § 778.11(b)(1);
- A statement of whether the applicant is a corporation, partnership, sole proprietorship, or other business entity, 30 C.F.R. § 778.11(a)(1);

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- Applicant's taxpayer identification number, 30 C.F.R. § 778.11(a)(2);
- Certification, made under oath, by "the natural person with the greatest level of effective control over the entire proposed surface mining operation . . . that he or she controls the proposed surface coal mining operation," 30 C.F.R. § 778.11(d);
- With respect the person making the certification required under 30 C.F.R. § 778.11(d), the person's name, address, telephone number, position title, relationship to applicant, percentage of ownership of the applicant, location in the organizational structure, and date the person began functioning in his or her current position, 30 C.F.R. § 778.11(e).

Second, in response to the requirements of 30 C.F.R. § 778.12 regarding the provision of permit history information, the Permit Application purports to provide a list of all issued and expired mining permits and all pending mining permits for Peabody Holding Company, Inc. However, the information provided falls short of the regulation's requirements. In particular, the Permit Application fails to provide the following information:

- List of all names under which the applicant, its operator, its partners and principal shareholders, and its operator's partners or principal shareholders operate or have operated a surface coal mining operation within the five-year period preceding the date of final submission of the Permit Application on January 17, 2002, 30 C.F.R. § 778.12(a);
- For both the applicant and operator for the Permit Application, any of the required information regarding pending permits for the period between the date the list was created, February 21, 2000, and the date of final submission of the Permit Application on January 17, 2002, 30 C.F.R. § 778.12(b);
- For both the applicant and operator for the Permit Application, any of the required information regarding coal mining operations owned or controlled for the period between the date the list was created, February 21, 2000, and the date of final submission of the Permit Application on January 17, 2002, 30 C.F.R. § 778.12(c);
- For any surface coal mining operation owned or controlled by the permittee or the operator during the five years prior to the date of final submission of the Permit Application on January 17, 2002, (i) the full name and address of the operator and permittee of that operation; (ii) the taxpayer identification number of the operator of that operation; (iii) the full name of the regulatory authority with jurisdiction over the permit; a clear statement the permittee's relationship to that operation including the permittee's percentage of ownership of the operation and the permittee's location in the organizational structure; (iv) and the operator's relationship to that operation including the operator's percentage of ownership of that operation and the operator's location in the organizational structure, 30 C.F.R. § 778.12(c).

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Third, with respect to the requirements of 30 C.F.R. § 778.13 regarding property interest information, the Permit Application provides no "statement of all interests, options, or pending bids" held or made for lands contiguous to the proposed permit area. 30 C.F.R. § 778.13(c).

Fourth, in response to the requirements of 30 C.F.R. § 778.14 regarding violation information, the Permit Application provides a Notice-of-Violation list for Notices of Violation issued between August 14, 1997 and November 23, 1999 to Peabody Western Coal Company ("PWCC"), its subsidiaries, affiliates, or persons controlled by or under common control with PWCC. In addition, it provides a certification by PWCC that as of May 18, 2000 any notices of violations by "the applicant or its parent companies for which the abatement period has not yet expired" are in the process of being corrected to the satisfaction of the agency with jurisdiction over the violation. The Permit Application also states that in the five-year period prior to May 18, 2000 neither PWCC nor its principal shareholders have had a State or Federal Mining permit revoked nor have forfeited a performance bond or similar security deposited in lieu of a bond. This response falls short of the requirements of 30 C.F.R. § 778.14 in failing to provide the following information:

- Whether the applicant, its operator, or any subsidiary, affiliate or entity that the applicant or operator owns or controls had a Federal or State permit for surface coal mining operations suspended or revoked between May 18, 2000 and the date of final submission of the Permit Application on January 17, 2002, 30 C.F.R. § 778.14(a)(1);
- Whether the applicant, its operator, or any subsidiary, affiliate or entity that the applicant or operator owns or controls forfeited a performance bond or similar security deposit between May 18, 2000 and the date of final submission of the Permit Application on January 17, 2002, 30 C.F.R. § 778.14(a)(2);
- A list of all violation notices received by the applicant or the operator for any surface coal mining and reclamation operation between November 23, 1999 and the date of final submission of the Permit Application on January 17, 2002, 30 C.F.R. § 778.14(c);³
- Certification that any violation identified in a notice of violation issued under 30 C.F.R. § 843.12, or its State regulatory equivalent, and with respect to which the notice of violation remained in effect between May 18, 2000 and the date of final

³ A duplicate of the copy of Compliance Information Section of the Permit Application (Chapter 3, Attachment 1, Exhibit E) that we received from OSM is included herein as Attachment E. The Compliance Information included a 17-page list, dated May 19, 2000 and titled "Peabody Holding Company: Notice of Violation List." The first 14 pages, numbered consecutively as pages 1 through 14, contained Notices of Violations ("NOV's") issued between August 14, 1997 and November 23, 1999. Each of these 38 NOV's pertained to the Black Mesa Mine or Kayenta Mine. The last three pages – numbered as pages 6, 60, and 1 – contained NOV's issued between March 3, 1997 and March 22, 2000. Of the eight violations on the final three pages, four pertained to Peabody Coal Company sites other than Black Mesa Mine or Kayenta Mine, three pertained to Eastern Associated Coal Corp., and one pertained to Rochelle Coal Company.

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submission of the Permit Application on January 17, 2002, is being abated or corrected to the satisfaction of the agency with jurisdiction over the violation, 30 C.F.R. § 778.14(e)(7);

- Description of any actions taken to abate or correct any violations not covered by 30 C.F.R. § 778.14(c)(7), 30 C.F.R. § 778.14(8).

Fifth, P & L Coal Holdings Corporation Secretary Jeffery L. Klinger provided an affidavit dated July 27, 1999 certifying that an employee of Peabody Holding Company, Inc., is authorized to provide information on violations of environmental laws related to P & L Coal Holdings Corporation and its related operating companies. Aside from having been executed nearly three years prior to the date of final submission of the Permit Application on January 17, 2002, this certificate does not meet the regulatory requirements of 30 C.F.R. § 778.9. Part 778.9 requires that applicants either (1) certify to OSM that all relevant information in the Applicant/Violator System is accurate, complete and up-to-date, (2) where information is missing from AVS or incorrect in AVS, submit the necessary information or corrections to OSM for input into AVS and swear or affirm that the information submitted is accurate and complete, or (3) include in the permit application the information required under Part 778. 30 C.F.R. § 778.9. Absent one of these three actions, the Permit Application cannot be complete. The Permit Application reflects none of the three.

2. The Permit Application Does Not Meet the Minimum Standard for Legal, Financial, Compliance and Related Information Under Part 778 Because It Does Not Provide Information Regarding the True Applicant

The Permit Application also fails to meet the minimum standard for legal, financial, compliance and related information because it fails altogether to provide information regarding the "true applicant" for the permit, Peabody Energy Corporation ("Peabody Energy"), formerly known as P & L Coal Holdings Corporation.⁴ For further discussion of the true applicant issue, see the section on Peabody Energy as the True Applicant below. Because Peabody Energy is the true applicant, but has not been identified as such in the Permit Application, the Permit Application necessarily fails to meet any of the requirements for providing information regarding the applicant.

With respect to the true applicant Peabody Energy, the Permit Application fails to provide the following applicant, operator and ownership and control information under 30 C.F.R.

⁴ The name "Peabody Energy Corporation" appears nowhere in the application. The applicant simply may have been negligent in failing in its numerous permit application amendments to provide to the public reviewing its application and to the OSM staff with the relevant information. However, more than one year ago on April 10, 2001 "P & L Coal Holdings Corporation," the wholly owning indirect parent of Peabody Western Coal Company, changed its name to "Peabody Energy Corporation." Peabody Energy Corporation failed to amend its application to reflect this change, even though notified its investors and the Securities & Exchange Commission of the change. *See, e.g.*, Peabody Energy Corp. 10-K, Dec. 31, 2001, at 5.

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§ 778.11. This information is deficient in respects that are in addition to those identified above regarding the applicant, operator and ownership and control information required under 30 C.F.R. § 778.11:

- Statement of the applicant's corporate status as a corporation, partnership, sole proprietorship, or other business entity, and its taxpayer identification number, 30 C.F.R. § 778.11(a);
- Applicant's resident agent for accepting service of process and its person responsible for submitting the Coal Reclamation Fee Report (Form OSM-1) and for remitting the reclamation fee payment to OSM, 30 C.F.R. § 778.11(b);
- Name, address, and telephone number, title, and relationship to the applicant (including percentage of ownership, location in the organization structure, and the date the person began functioning in that position) for each of the applicant's officers, directors, persons performing a function similar to a director, persons owning 10 to 50 percent of the applicant, persons owning or controlling the applicant, and natural persons with the greatest level of effective control over the entire proposed surface mining operation, 30 C.F.R. § 778.11(c)-(e);
- From the natural person with the greatest level of effective control over the entire proposed surface mining coal mining operation, a certification, under oath, that he or she controls the proposed surface coal mining operation. 30 C.F.R. § 778.11(d).

The Permit Application also fails to provide full permit history information for Peabody Energy as required by 30 C.F.R. § 778.12 in addition to the deficiencies in the permit history information identified above.

The Permit Application also fails to provide full violation history information for Peabody Energy as required by 30 C.F.R. § 778.12 in addition to the deficiencies in the violation history information identified above.

3. The Permit Application Does Not Meet the Minimum Requirements for Information on Environmental Resources Under Part 779

The Permit Application does not meet the minimum standard for information on environmental resources under 30 C.F.R. § 779. The Permit Application does not provide information addressing each application requirement under 30 C.F.R. § 779. Nor does the Permit Application provide all information necessary to initiate processing and public review with respect to these requirements.

In particular, the Permit Application fails to provide an adequate description and identification of the nature of cultural, historic and archeological resources listed or eligible for listing on the National Register of Historic Places and known archeological sites within the

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proposed permit and adjacent areas as required under 30 C.F.R. § 779.12(b)(1). See the written comments by the Sierra Club regarding "Cultural Impacts," which address the deficiencies in the description and identification of the nature of cultural, historic and archeological resources. The Sierra Club comments have been incorporated herein by reference noted in the cover letter to the present comments.

The Permit Application also fails to provide adequate climatologic information as required by 30 C.F.R. § 779.18, particularly with regard to rainfall and the impact of the mining operations on the availability of surface and ground water. In addition, the Permit Application fails to provide an adequate description of the vegetative resources as required by 30 C.F.R. § 779.19 identifying native plant communities; and an adequate description of soil resources as required by 30 C.F.R. § 779.21. See the written comments by NRDC *et al.* dated April 26, 2002 regarding "Groundwater and Fish, Wildlife & Plants," which address the deficiencies in the fish, wildlife and vegetation information and plans. The NRDC comments have been incorporated herein by reference noted in the cover letter to the present comments.

4. The Permit Application Does Not Meet the Minimum Standard for Reclamation and Operation Plans Under Part 780

The Permit Application does not meet the minimum standard for reclamation and operation plans under 30 C.F.R. § 780. The Permit Application does not provide information addressing each application requirement under 30 C.F.R. § 780. Nor does the Permit Application provide all information necessary to initiate processing and public review with respect to these requirements.

The greatest deficiency in this regard is the failure of the Permit Application to provide adequate hydrologic information and an adequate hydrologic reclamation plan addressing the effects of the pumping of water from the N-Aquifer as required under 30 C.F.R. § 780.21(h) and other applicable sections. See the written comments by NRDC *et al.* dated April 26, 2002 regarding "Groundwater and Fish, Wildlife & Plants," which address the deficiencies in the hydrologic reclamation plan. The NRDC comments have been incorporated herein by reference noted in the cover letter to the present comments.

The Permit Application also fails to provide an adequate survey of fish and wildlife resources and an adequate fish and wildlife protection and enhancement plan as required under 30 C.F.R. § 780.16. The scope and level of detail for such information is inadequate and reflects a significant lack of effort to identify and protect species and habitats in and around the mining area and in the areas that will be affected by the mining. See the written comments by NRDC *et al.* dated April 26, 2002 regarding "Groundwater and Fish, Wildlife & Plants," which address the deficiencies in the fish, wildlife and vegetation information and plans. The NRDC comments have been incorporated herein by reference noted in the cover letter to the present comments.

The Permit Application also fails to provide an adequate blasting plan under 30 C.F.R. § 780.13 that protects adversely affected parties from vibrations and airblasts and that adequately monitors the effects of these blasts on persons in surrounding areas and particularly

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the affects on areas downwind of the mine for effects on the health of persons, animals, and vegetation and for damage to property. Likewise the Permit Application fails to provide an adequate air pollution control plan under 30 C.F.R. § 780.15 for monitoring air quality and for controlling fugitive dust. Like the blasting plan, the air pollution control plans fails to address the needs of persons, animals, vegetation and property downwind from the mine for effects on the health of persons, animals and vegetation and for damage to property. In neither the blasting plan nor the air pollution control plan are these considerations adequately addressed.

In addition to the particular failings of the hydrologic reclamation plan referenced above, the Permit Application also fails to provide an adequate general reclamation plan required under 30 C.F.R. § 780.18 and other sections of Part 780. The vegetation and landscape of the mining area are unique and the proposed reclamation does not provide adequately provide for revegetation involving the return of native plants over a reasonable timetable or for redistribution of the soils in an adequate manner to restore the landscape to as close as possible to its original character. See the written comments by NRDC *et al.* dated April 26, 2002 regarding "Groundwater and Fish, Wildlife & Plants," which address the deficiencies in the fish, wildlife and vegetation information and plans. The NRDC comments have been incorporated herein by reference noted in the cover letter to the present comments.

The Permit Application also fails to adequately address the protection of publicly owned parks and historic places that will be affected under the mining as required by 30 C.F.R. § 780.31. For example, a number of publicly owned parks and historic places rely on water from the N-Aquifer, and yet the Permit Application provides no analysis of the impact of the proposed pumping of N-Aquifer water on these parks and historic places at all.

5. The Permit Application Does Not Meet Other Completeness Standards

The Permit Application does not meet the minimum standards for completeness in other regards. The Permit Application fails to provide all information necessary to initiate processing and public review with respect to certain other aspects of the application requirements.

In particular, the applicant has chosen to perform bonding calculations relating to some application requirements of the regulatory program but not others. In particular the applicant has chosen not to present any bonding calculations related to hydrologic reclamation of the N-Aquifer. The absence of such bonding calculations is a glaring omission. Given the potential consequences of damage to the aquifer and the potential enormity of the cost of remedying them, a hydrologic reclamation bond could be quite substantial relative to other bonding requirements. Thus, the bonding calculations provided create a misleading impression of the total potential cost of reclamation and of the ability or willingness of the applicant to secure a bond sufficient to protect any natural resources that could be damaged by the proposed mining operations. As a result, the Permit Application is gravely deficient and does not contain the information necessary for administrative and public review. For additional discussion of this issue, see generally Section IV on the Reclamation Performance Bond below.

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C. OSM Should Extend the Period for Public Comments Through the Time Provided for in the Chapter VII of Title 30 of the Code of Federal Regulations

As this extensive list of deficiencies shows, the Permit Application does not meet the minimum standard for provide information as required under 30 C.F.R. §§ 778-780 and lacks certain other information necessary to initiate processing and public review. As a result, the Permit Application comes up woefully short of meeting the requirements for administrative completeness under 30 C.F.R. §§ 701.5 and 777.15. Only once the Permit Application is complete, can the public notice steps required by 30 C.F.R. § 773.6(a) be effected. Only after the required public notice steps of 30 C.F.R. § 773.6(a) have been completed, may the 30-day clock provided for in 30 C.F.R. § 773.6(b)(2) begin to count down to the end of the public comment period. Prior to those events occurring, any decision to close the public comment period has no basis in the law and is premature, arbitrary, and capricious.

III. PEABODY ENERGY CORPORATION IS THE "TRUE APPLICANT" AND OSM SHOULD REVIEW THE PERMIT APPLICATION ON THAT BASIS

OSM should use its authority to pierce the corporate veil of Peabody Western Coal Company ("PWCC") and of PWCC's direct and indirect parents to identify Peabody Energy Corporation ("Peabody Energy") as the "true applicant" for the Permit Application. Congress's statutory scheme for regulating surface coal mining assumes that the actual controller of the proposed operations, not its mere agent, is the focus of OSM's regulatory review. In the present case, Peabody Energy is the "the true locus of control" over PWCC and the Black Mesa and Kayenta Mines. As a result, OSM should identify Peabody Energy as the "true applicant," require of Peabody Energy that it produce all the information that SMCRA and Chapter VII of Title 30 of the Code of Federal Regulations require of a permit applicant, and review the Permit Application on the basis that Peabody Energy in all material respects is the permit applicant.

A. OSM Should Use Its Authority to Pierce the Corporate Veil to Find the "True Applicant"

Among the purposes of SMCRA are "to protect society and the environment from the adverse effects of surface mining operations" and to "assure that surface coal mining operations are so conducted as to protect the environment." 30 U.S.C. 1202. To this end, section 510(c) of SMCRA provides that where "any surface coal mining operation owned or controlled by the applicant is currently in violation of the Act or [any law, rule, or regulation of the United States, or of any department or agency in the United States pertaining to air or water environmental protection], the permit shall not be issued until the applicant submits proof that such violation has been corrected or is in the process of being corrected to the satisfaction of the regulatory authority, department, or agency which has jurisdiction over such violation" 30 U.S.C. 1260(c). The threat of such a penalty provides a substantial incentive to applicants to remain in compliance with U.S., tribal, state and local environmental laws.

Section 510(c) is "unmistakably clear . . . that when 'any surface coal mining operation owned or controlled by the applicant' is currently in violation of SMCRA, the permit

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shall not be issued." *National Mining Association v. United States Department of the Interior*, 105 F.3d 691, 694 (D.C. Cir. 1997) (quoting 30 U.S.C. 1260(c)). However, OSM should not rely on the representations made in a permit application as to the identity of the "true applicant." *National Mining Association*, 105 F.3d at 695 (addressing OSM's power "once OSM has determined that it has the true applicant before it"). Rather, OSM itself should determine "who the 'applicant' is." *Id.* (emphasis in original). See also *Kavanaugh v. Ford Motor Company*, 353 F.2d 710, 717 (7th Cir. 1965) ("It is settled doctrine that the fiction of corporate entity will be disregarded whenever it has been adopted or used to evade the provisions of a statute.").

The authority of regulatory agencies, including OSM, to reach through the corporate veil to identify the true applicant is well-established. See, e.g., *National Mining Association*, 105 F.3d at 695 ("OSM has the authority where there is subterfuge to pierce the corporate veil in order identify real applicant."). In exercising its regulatory authority, a regulatory agency is "entitled to ascertain, and base its findings upon, the true locus of control." *Mansfield Journal Co. v. FCC*, 180 F.2d 28, 37 (D.C. Cir. 1950) (upholding the Federal Communications Commission's authority to pierce the corporate veil of a license applicant to review the activities of the applicant's parent). To that end, where appropriate "to carry out statutory objectives, it is frequently necessary to seek out and give character to the identity and characteristics of the controlling officers and stockholders of a corporation." *Mansfield Journal Co.*, 180 F.2d at 37. See also *Capital Telephone Company, Inc. v. Federal Communications Commission*, 498 F.2d 734, 738 (D.C. Cir. 1974) ("The courts have consistently recognized that a corporate entity may be disregarded in the interests of public convenience, fairness and equity.") (citing *Taylor v. Standard Gas & Electric Co.*, 306 U.S. 307, 322, 59 S.Ct. 543, 83 L.Ed. 669 (1939); *Chicago Milwaukee & St. Paul Ry. Co. v. Minneapolis Civic & Commerce Ass'n*, 247 U.S. 490, 500-501, 38 S.Ct. 553, 62 L.Ed. 1229 (1918)). In fact, "[w]hat is disturbing is the mechanistic, metaphysical incantation of the doctrinal bar of the corporate veil. Such doctrines lose much of their sacrosanctity when urged in the context of regulated industries. The fact that a subsidiary corporation exists should be a starting point for searching inquiry, not the finish line." *Capital Telephone Company, Inc.*, 498 F.2d at 738.

To carry out SMCRA's statutory objective of assuring that mining operations are "so conducted as to protect the environment," Congress did not intend for "true applicants" to be able to hide behind corporate forms that do not reflect the true operational nature of their enterprises. Rather, where "the true locus of control" of a surface coal mining operation is located in an entity other than the purported applicant, OSM should give effect to SMCRA's purpose by using its authority to "pierce the corporate veil in cases of subterfuge in order to ensure that it has the true applicant before it." *National Mining Association*, 105 F.3d at 695.⁵

⁵ OSM should use particular care with respect to the present Permit Application because OSM has a heightened duty with respect to the review of permit applications involving resources on Indian lands. For a fuller discussion of the implications of OSM's trust responsibilities for the review of the Permit Application, see comments submitted by Black Mesa Trust under separate cover regarding the standard of proof that the applicant must meet in cases involving Indian lands and OSM's heightened duty of care arising from its fiduciary duties in such circumstances. The separate comments by Black Mesa Trust on standard of proof and OSM's heightened duty have been incorporated herein by reference noted in the cover letter to the present comments.

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B. Peabody Energy Corporation is the "True Applicant" for the Black Mesa and Kayenta Mines Permit

Long before the finish of any "searching inquiry" into the relationship between Peabody Energy Corporation ("Peabody Energy") and the operations at the Black Mesa and Kayenta Mines, *see* Capital Telephone Company Inc., 498 F.2d at 738, Peabody Energy emerges clearly as the "true locus of control" for the operations of those mines and should be held accountable as the true permit applicant.

1. Domination and Control of Decision-Making

Peabody Energy dominates and controls the operations at the Black Mesa and Kayenta Mines. The executive and corporate decision-making process with respect to the Black Mesa and Kayenta Mines makes this clear.⁶ Peabody Energy leases the coal rights to the Black Mesa and Kayenta Mines through a series of subsidiaries: Peabody Energy (formerly known as P & L Coal Holdings Corporation) wholly owns Peabody Holding Company, Inc., which wholly owns Interior Holdings Corporation, which wholly owns Peabody Coal Company, which wholly owns Peabody Western Coal Company ("PWCC"), which holds the lease rights. *See* Attachment A (Permit Application, Ch. 3, Att. 1, Ex. B).

Of the eight members of the PWCC board of directors identified in the permit application, seven are current officers or directors of PWCC's parent Peabody Coal Company and one is a past director of Peabody Coal Company. *See* Attachment B (Permit Application, Ch. 3, Att. 1, Ex. A). Six of the eight listed PWCC officers and directors also serve as officers and directors of PWCC's great-grandparent Peabody Holding Company, Inc., including Richard M. Whiting, who serves as President of both of Peabody Holding Company, Inc. and of P & L Coal Holdings Corporation (now Peabody Energy), and Roger B. Walcott, Jr., who serves as the only executive vice president of each company. *See id.*

PWCC's parent Peabody Coal Company likewise is dominated by its parent Interior Holdings Corporation, its grandparent Peabody Holding Company, Inc., and its great-grandparent Peabody Energy. Four of the six Peabody Coal Company directors and officers identified in the OSM AVS database are also directors or officers of both Peabody Holding Company, Inc. and of Peabody Energy. *See* Attachment C (AVS System Report, Wed., Apr. 24, 2002, 15:53:38 MDT 2002). The Permit Application identifies all five of Interior Holdings Corporation's reported officers and directors as also being officers or directors of its parent Peabody Holding Company, Inc. *See* Attachment B (Permit Application, Ch. 3, Att. 1, Ex. A). It further identifies four of the five Interior Holding Corporation officers and directors as also being officers or directors of Peabody Energy's predecessor in name, P & L Coal Holdings Corporation. *See id.* Finally, according to the OSM AVS database, all but one of Peabody

⁶ As noted above, the Permit Application fails to provide the updated corporate information required by the regulations, including information regarding officers and directors. Moreover, the information provided in the Permit Application appears inconsistent with the information provided in the OSM AVS database. Nonetheless, even the incomplete and inconsistent information available provides substantial evidence of Peabody Energy's ability to dominate of the Black Mesa and Kayenta Mines.

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Energy's officers and directors also are officers or directors of Peabody Holding Company, Inc. See Attachment C (AVS System Report, Wed., Apr. 24, 2002, 15:53:38 MDT 2002). Moreover, Irl F. Engelhardt serves as president, chairman, and/or chief executive officer of Interior Holdings Corporation, Peabody Holding Company, Inc., and Peabody Energy. See Attachment B (Permit Application, Ch. 3, Att. 1, Ex. A).

In addition, the Permit Application locates the offices of the Peabody Coal Company, Interior Holdings Corporation, Peabody Holding Company, Inc., and Peabody Energy all on the seventh floor of 701 Market Street, St. Louis, MO, 63101-1826, with the offices of Peabody Holding Company, Inc. and Peabody Energy being located in the same suite. See *id.* The Permit Application also lists the same phone number for each of the four 701 Market Street companies: 314-342-3400. See *id.*

2. Actual Control and Public Holding Out

Peabody Energy operates and holds itself out as the owner and operator of the Black Mesa and Kayenta Mines. On April 11, 2001, Irl F. Engelhardt, as Chairman and Chief Executive Officer of the entire Peabody Group of companies, met with Interior Secretary Gale Norton to lobby the Department to grant the Permit Application for the Black Mesa and Kayenta Mines. See Attachment D (Letter from Irl F. Engelhardt to Secretary of the Interior Gale Norton, April 17, 2001). No notes made by Secretary Norton or any other U.S. officials who attended the meeting, nor any other documents produced in relationship to it, have been made part of the record of decision in this case.⁷ However, in a letter already a part of the administrative record of decision in this case, Chairman Engelhardt tells Secretary Norton that "[t]he first matter I want to present to you, however, deals specifically with our venture on Black Mesa with the Navajo and Hopi Tribes. Peabody operates two coal mines on Black Mesa We operate the Black Mesa Mine." See *id.* (emphasis added). Later in the letter Chairman Engelhardt again refers to the role of the Peabody Group as a whole: "Peabody believes it is time for the Black Mesa Mine to be awarded a permanent permit. . . . Peabody stands ready to assist and cooperate with you in any way appropriate as the Interior Department works through the permitting process." See *id.*

Even the Permit Application itself contains admissions that provide evidence that the Black Mesa and Kayenta Mines are controlled by the parents of PWCC rather than by PWCC itself. The Compliance Information provided in the Permit Application describes all the companies identified in the Notice of Violations List provided as being "subsidiaries, affiliates, or persons controlled by or under common control with PWCC." See Attachment E (Permit Application, Chapter 3, Attachment 1, Exhibit E, at 1). This list includes Peabody Coal Company, Eastern Associated Coal Company, and Rochelle Coal Company. See *id.* According to the Organizational Chart for the P & L Family of Companies provided in the Permit

⁷ We would request at this time that any notes made by Secretary Norton and any U.S. Government officials who attended the meeting with Irl Engelhardt on April 11, 2001 be made a part of the administrative record of decision for the Black Mesa and Kayenta Mine Permit Application, along with any other documents that were created in anticipation of, during, or as a result of this meeting. The only related document that is part of the administrative record of decision at this time is a letter from Irl F. Engelhardt to Secretary Gale Norton on April 17, 2001.

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Application, the only common parents that Peabody Coal Company and Eastern Associated Coal Company have are Peabody Holding Company, Inc. and P & L Holdings Corp. (now Peabody Energy). See Attachment A (Permit Application, Ch. 3, Att. 1, Ex. B).⁸ The same document states that records of violations for PWCC are maintained at the offices of the General Counsel of Peabody Holding Company, Inc., at 701 Market Street, St. Louis, MO. See Attachment E (Permit Application, Chapter 3, Attachment 1, Exhibit E, at 1). The reliance upon a corporate parent either for central record keeping or for provision of legal services provides strong evidence that the subsidiary itself is not able to or does not function as a fully independent entity.

In addition, in Peabody Energy's filings with the Securities and Exchange Commission, Peabody Energy represents to its investors that "we own and operate mines in Arizona" and that as part of its "Southwest Operations" "[w]e own and manage four mines in the western bituminous coal region – two in Arizona, and one in each of Colorado and New Mexico." See, e.g., Attachment F (Peabody Energy Corporation 10-K, Dec. 31, 2001, at 4, 6, Disc. Pages 5, 8). See also Attachment G (Prospectus Offering 9,000,000 Shares of Peabody Energy Common Stock, Apr. 5, 2002, at 1, Disc. Page 16 ("In the west, we own and operate mines in Arizona . . .")). Peabody Energy makes clear that the two Arizona mines that it "own[s]," "operate[s]," and "manage[s]" are "[t]he Black Mesa Mine, which is located on the Navajo Nation and Hopi Tribe reservations in Arizona" and "[t]he Kayenta Mine [which] is adjacent to the Black Mesa Mine." Attachment F (Peabody Energy Corporation 10-K, Dec. 31, 2001, at 6-7, Disc. Page 8). See also Attachment F (Note 11 (Leases) to 2001 Consolidated Financial Statements of Peabody Energy Corporation, at 47, Peabody Energy Corporation 10-K, Dec. 31, 2001, at Disc. Page 173) ("The Company [Peabody Energy] also leases the coal production at its Arizona mines from the Navajo Nation and Hopi Tribe . . ." (parenthetical phrase added))). In its public filings targeted at its investors, Peabody Energy consolidates the coal in the Black Mesa and Kayenta Mines in its coal production and its tonnage of coal reserves yields from "our operating mines." See Attachment F (Peabody Energy Corporation 10-K, Dec. 31, 2001, at 21, Disc. Page 28-29 (Chart, Production and Assigned Reserves (identifying, as part of the total Peabody Energy coal production and assigned proven and probable reserves, the Black Mesa Mine and Kayenta Mine coal production for 2000 and 2001 and the Black Mesa Mine and Kayenta Mine assigned proven and probable reserves as of December 31, 2001))). It also consolidates the sales from its Black Mesa and Kayenta Mines as part of its own total sales volume figures and boasts of "higher demand at both of our Arizona mines," which were met due to "our previous capital investments." *Id.* at 32, Disc. Page 47 (emphasis added).

Peabody Energy likewise represents to investors that the revenue and liabilities from the Black Mesa and Kayenta mines are its own. Profit from the mines of the "Southwest region" also is attributed to Peabody Energy. *Id.* at 36, Disc. Page 51 ("In the Southwest region, we realized increased operating profit of \$12.1 million as a result of improved productivity and higher sales volume in fiscal year 2001." (emphasis added)). Peabody Energy also appears to

⁸ Rochelle Coal Company, recipient of NOV #400011 by the Wyoming Department of Environmental Quality is not identified on the Organizational Chart for the P & L Family of Companies. Compare Attachment A (Permit Application, Ch. 3, Att. 1, Ex. B) with Attachment E (Permit Application, Chapter 3, Attachment 1, Exhibit E, at 1).

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include liabilities for the leases, land reclamation and other related liabilities at the Black Mesa and Kayenta Mines on its own balance sheet. See id. at 12, Disc. Page 15-16 (not distinguishing between those operations for which Peabody Energy recognizes land reclamation liabilities on its balance sheet and those from which it claims protection of limited corporate liability); see Attachment G (Prospectus Offering 9,000,000 Shares of Peabody Energy Common Stock, Apr. 5, 2002, at 6, Disc. Page 21 (failing to distinguish those operations for which it claimed protection of limited corporate liability: "As of December 31, 2001, we had outstanding surety bonds with third parties for post-mining reclamation totaling \$684.9 million")); see Attachment F (Note 11 (Leases) to 2001 Consolidated Financial Statements of Peabody Energy Corporation, at 47, Peabody Energy Corporation 10-K, Dec. 31, 2001, at Disc. Page 173 (discussing leases from Navajo Nation and Hopi Tribe as part of Peabody Energy's "lease obligations . . . secured by outstanding surety bonds and letters of credit totaling \$140.4 million")).

Peabody Energy also has structured its finances in such a way as to dominate and control the Black Mesa and Kayenta operations. Peabody Energy's Senior Credit Facilities (both Senior Notes and Senior Subordinated Notes) are secured by a first priority lien of certain of its own and of its domestic subsidiaries' assets. See Attachment F (Note 15 (Long-Term Debt) to 2001 Consolidated Financial Statements of Peabody Energy Corporation, at 50, Peabody Energy Corporation 10-K, Dec. 31, 2001, at Disc. Page 178); see Attachment F (Note 29 (Supplemental Guarantor/Non-Guarantor Financial Information) to 2001 Consolidated Financial Statements of Peabody Energy Corporation, at 64, Peabody Energy Corporation 10-K, Dec. 31, 2001, at Disc. Page 199). The Black Mesa and Kayenta operations may be included among those "Restricted Subsidiaries" that cannot "create or otherwise cause any encumbrance or restriction on the ability of such Restricted Subsidiary to pay any dividends or make certain other upstream payments subject to certain exceptions." See Attachment F (Note 15 (Long-Term Debt) to 2001 Consolidated Financial Statements of Peabody Energy Corporation, at 50, Peabody Energy Corporation 10-K, Dec. 31, 2001, at Disc. Page 178). The financial domination of these subsidiaries is so extensive that Peabody Energy did not release "[s]eparate financial statements and other disclosures concerning the Guarantor Subsidiaries . . . because management believes that that such information is not material to holders of the Senior Notes or Senior Subordinated Notes." see Attachment F (Note 29 (Supplemental Guarantor/Non-Guarantor Financial Information) to 2001 Consolidated Financial Statements of Peabody Energy Corporation, at 64, Peabody Energy Corporation 10-K, Dec. 31, 2001, at Disc. Page 199).

In addition, the employees at the Black Mesa and Kayenta Mines appear to receive benefits under either a defined benefit pension plan covering a significant portion of all salaries U.S. employees under the Peabody Energy umbrella or one covering eligible employees represented by the United Mine Workers of America under the Western Surface Agreement of 2000. See Attachment F (Note 17 (Pension and Savings Plans) to 2001 Consolidated Financial Statements of Peabody Energy Corporation, at 52, Peabody Energy Corporation 10-K, Dec. 31, 2001, at Disc. Page 181-82; see also Attachment F (Peabody Energy Corporation 10-K, Dec. 31, 2001, at 6-7, Disc. Page 8) (identifying hourly workers at the Black Mesa and Kayenta Mines as begin employed under a United Mine Workers contract). Peabody Energy also seems to include workers' compensation obligations and post-retirement health care and life insurance benefits for all eligible employees under the Peabody Energy umbrella, including those at the Black Mesa

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and Kayenta Mines, on its consolidated financial statements as its own obligations. See Attachment F (Note 17 (Pension and Savings Plans) to 2001 Consolidated Financial Statements of Peabody Energy Corporation, at 51, 54, Peabody Energy Corporation 10-K, Dec. 31, 2001, at Disc. Page 180, 184).

3. Peabody Energy is the True Applicant

Peabody Energy's relationship with Peabody Western Coal Company ("PWCC") establishes Peabody Energy as the "true locus of control" behind this Permit Application and the conduct of mining and reclamation operations at the Black Mesa and Kayenta Mines. Moreover, Peabody Energy consistently has held itself out as the owner, manager and operator of the Black Mesa and Kayenta Mines. As a result, Peabody Energy should be held accountable as the "true applicant" for the permit, not Peabody Energy's mere agent PWCC. To do otherwise would violate SMCRA's intent and betray OSM's trust responsibilities with respect to the natural resources of the Hopi Tribe and Navajo Nation.

As a result of Peabody Energy being the "true applicant," OSM should review the Permit Application to ensure that it contains all the information required of the applicant for the permit with respect to Peabody Energy. As identified above, this information includes but is not limited to applicant, ownership and control information required under 30 C.F.R. § 778.11; permit history required under 30 C.F.R. § 778.12; and violation information required under 30 C.F.R. § 778.14. As part of this review, OSM should ensure that this information is provided for all the surface coal mining operations that Peabody Energy controls directly and through its subsidiaries, as is required under Part 778 of Title 30. To supplement the list of 38 subsidiaries of P & L Coal Holdings Corporation provided to OSM in the Permit Application, see Attachment A (Permit Application, Ch. 3, Att. 1, Ex. B, at 1), we have attached a fuller list of 118 subsidiaries of P & L Coal Holdings Corporation in its re-christened form of Peabody Energy that were disclosed to investors and the Securities and Exchange Commission. See Attachment F (Exhibit 21 to 2001 Consolidated Financial Statements of Peabody Energy Corporation, Peabody Energy Corporation 10-K, Dec. 31, 2001 (Disclosure Page No. 209-210).

IV. THE RECLAMATION PERFORMANCE BOND IS SUBSTANTIALLY AND MATERIALLY DEFICIENT

The reclamation performance bond submitted by Peabody in connection with its mine permit application is substantially and materially deficient. Most significantly, Peabody's bond is not supported by a meaningful hydrologic reclamation plan. Consequently, the bond program provides no funding at all to reclaim or replace the N-aquifer water source, and no funding to reclaim or replace damaged surface waters.⁹ In addition, although Chapter Three of Peabody's permit application contains some evidence of bonding and insurance, questions remain whether the bonds and insurance meet regulatory requirements for form, whether they

⁹ We note that in contending that the hydrologic reclamation bond is inadequate, we do not suggest that bonding in itself will solve the problems with Peabody's drawdown of the N-aquifer for the slurry line, the problems with Peabody's surface water impoundments, or any other problems with mine operations discussed in other sections of these comments.

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contain improper limitations on liability, and whether the bonds and insurance are up to date and in full effect.

These problems with Peabody's bond plan are compounded by shortcomings attributable to OSM. OSM bears the regulatory responsibility for setting the bond amount through independent calculations for the entire mine project. Even though Peabody purports to provide bond funding sufficient to perform the required reclamation on both the Kayenta and Black Mesa mines (see permit application Chapter 24, Bonding Summary), there is no evidence that OSM has ever independently reexamined Peabody's bond calculations, either at the time the permits were approved, or at any time since.

Moreover, OSM has allowed Peabody to operate the two mines since 1985 notwithstanding the total lack of bond funding for aquifer and surface water reclamation or replacement. Even assuming that the science supported OSM's decision to proceed in 1985 without a meaningful hydrologic reclamation plan or hydrologic reclamation bond, OSM has failed to reconsider that decision in response to ample evidence of aquifer deterioration, dried up springs, and diminished surface water flows. Moreover, Peabody's current application for a major permit revision calls for a 32% increase in N-aquifer pumping for the slurry line. This 32% increase represents "changed conditions" and constitutes a major permit revision. Accordingly, the regulations require OSM to recalculate the bonds. At this juncture, as OSM considers this application for a major permit revision, OSM must meet its obligations and set a bond amount, through independent calculations, that reflects the true costs of hydrologic reclamation and reclamation for the total mine site.

A. Peabody Has Failed to Meet Its Obligations

The Surface Mining Control and Reclamation Act of 1977 ("SMCRA"), 30 U.S.C. §§ 1201-1328, and the implementing regulations, Title 30 of the Code of Federal Regulations, require each applicant for a mining permit to submit a reclamation plan in sufficient detail to demonstrate compliance with the reclamation standards of the applicable regulatory program. 30 U.S.C. § 1257(d), 30 C.F.R. § 780.18-38. SMCRA and the regulations further require that the reclamation bond be "sufficient to assure the completion of the reclamation plan if the work had to be performed by the regulatory authority." 30 U.S.C. § 1259(a); 30 C.F.R. § 800.14(b).

The hydrologic reclamation plan shall include "a detailed description of the measures to be taken to ... to assure the protection of ... the rights of present water users." To the extent the rights of present users cannot be assured, the hydrologic reclamation plan is to include a description of "alternative sources of water." 30 U.S.C. § 1258(a)(13). See also 30 C.F.R. §§ 780.21(h), 816.41(a),(h) ("The application shall include a plan ... [referencing § 816.41(a)] ... indicating ... steps to be taken ... to replace the water supply of an owner of an interest in real property ... where the water supply has been adversely impacted ... [by] the surface mining activities"). The bond in support of the hydrologic reclamation plan "shall be sufficient to assure completion of the reclamation plan." 30 U.S.C. § 1259(a); see also OSM's Handbook on Calculation of Reclamation Bond Amounts, p. 5 ("[T]he performance bond ...

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must be adequate to ensure completion of the hydrologic reclamation plan approved in the permit").

Furthermore, "[t]he operator of a surface coal mine shall replace the water supply of an owner of interest in real property who obtains all or part of his supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source where such supply has been affected by contamination, diminution, or interruption proximately resulting from such surface coal mine operation." 30 U.S.C. § 1307(b); 30 C.F.R. § 816.41(h).

Here, Peabody has not established a program that would allow it to meet these requirements. First, Peabody has failed to submit a hydrologic reclamation plan that assures protection or replacement of the water resources relied on by the Hopi and Navajo. Although Chapter 19 of Peabody's permit application is entitled "Hydrologic Reclamation Plan," this "plan" does nothing to assure protection of water resources. Peabody's plan consists of two parts. First, Peabody lists measures it is taking to avoid damage to the hydrologic balance. Second, Peabody offers a "monitoring plan" to "assess impacts" of mining. The regulations do require such a monitoring plan for both surface and ground waters. See, e.g., 30 C.F.R. § 780.21(i),(j) ("The application shall contain a groundwater monitoring plan ..."). However, these monitoring regulations do not replace or eliminate the requirement of a reclamation plan as well. See 30 C.F.R. §§ 780.21(h) titled "Hydrologic reclamation plan," and 816.41(h). "Monitoring" of water resources and "assessing impacts," while important, do not assure the protection of water rights or replacement of water sources.

Next, Peabody has provided no bond funding at all to support a hydrologic reclamation plan even if one existed. This is a violation of the statute and regulations, because Peabody is required to provide a bond that is adequate to support a meaningful plan. 30 U.S.C. § 1259(a); 30 C.F.R. § 800.14(b) ("The amount of the bond shall be sufficient to assure the completion of the reclamation plan"). Peabody cannot avoid the requirement of posting a meaningful hydrologic reclamation bond by simply failing to create a meaningful plan.

To justify its lack of a reclamation plan or bond, Peabody apparently relies on its hydrologic "model," purporting to demonstrate that the slurry pumping has a "negligible" effect on the aquifer. See, for example, the letter of August 10, 2001, sent from Randy Lehn, Manager of Reclamation and Engineering at the Black Mesa Mine, to OSM in Denver, attention Jerry Gavette. In this letter Randy Lehn asserts that there is "no rational reason" for withholding a Permanent Program Permit from the Black Mesa Mine. Lehn asserts that Peabody's 3-D model of the aquifer provides "incontrovertible technical information to support the conclusion that the hydrologic consequences of Peabody's past, present and projected usage of the Navajo Aquifer are negligible." Given this claim of negligible effect on the aquifer, combined with the absence of any bond funding for a hydrologic reclamation plan, one can only conclude that Peabody takes the position that it should not be required to provide a hydrologic reclamation plan or bond to cover any such "negligible" effects on the aquifer.

Peabody might be justified in failing to provide a reclamation plan and bond if it could actually demonstrate that the effects caused by pumping for the slurry line were truly

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"negligible." Peabody cannot make such a showing, however, because the "model" it relies on to make that point is fundamentally flawed.

As discussed at length in the section of these Comments submitted by the Natural Resources Defense Council ("NRDC"), Peabody's model is flawed for at least the following reasons: 1) the model is purely theoretical, and thus fails to consider the substantial empirical data that challenge its assumptions; 2) the model begins without meaningful baseline data, thereby rendering meaningless any wellhead measurements taken through its current monitoring programs; and 3) the model assumes, without scientific support, an almost never-ending recharge source for the 3.3 million gallons a day Peabody draws from the aquifer. See NRDC Comments, citing to the recently released report of environmental consulting firm Levine-Fricke, which critically analyzed Peabody's model of the aquifer.

Because Peabody's model is flawed, its conclusion asserting negligible effects on the aquifer is also flawed. Consequently, Peabody is not justified in failing to provide a hydrologic reclamation plan and a performance bond sufficient to support that plan.

It is important to note, however, that OSM need not find that Peabody's model is "fundamentally flawed" in order to impose a bonding requirement here. OSM need only entertain "uncertainties" about the validity of the model to find that a performance bond should be required. A recent Department of Interior administrative appeal decision makes the point. *National Wildlife Federation, et al.*, 145 Interior Dec. 348, 1998 WL 1745294 (D.O.I., September 23, 1998). In *National Wildlife*, an environmental group, suing under a statute similar to SMCRA, challenged the Bureau of Land Management's ("BLM") approval of a surface copper mine in Utah. The Administrative Appeals Court made the point that the BLM, at the time it made the decision to approve the mine, did not have adequate information to conclude that no performance bond was required. This lack of information was largely caused by a lack of baseline groundwater information for the N-aquifer. The ALJ made the following observation:

We believe the proper course of action at the time the ROD issued in March 1997 would have been for BLM, an agency operating under a mandate to protect the public lands from unnecessary or undue degradation, to require the posting of a sufficient long-term bond to protect against the uncertainties relating to groundwater quality.

National Wildlife, 145 Interior Dec. 348, 360, 1998 WL 1745294, *9.

Similarly here, to support the requirement of a performance bond, OSM need only entertain "uncertainties" relating to groundwater. Such uncertainties exist here. First, as discussed above, there is the empirical data calling the model into question; second, there is a lack of baseline groundwater information; and third, there are the questions raised by Levine-Fricke about the science behind Peabody's model. Indeed, Peabody itself acknowledges uncertainties with respect to the reliability of its model. See the discussion in NRDC's Comments: "Peabody admits ... 'the models are not of sufficient resolution to simulate flow at

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individual springs . . . “); “Peabody acknowledges in its [Probably Hydrologic Consequences report] that ‘uncertainty in recharge rates remain.’ PHC at 45.”

Regardless of whether OSM finds that Peabody’s model is fundamentally flawed, the materials presented by NRDC and others create uncertainties. Thus, at least until such uncertainties are resolved, OSM must require a bond sufficient to protect the aquifer, or replace it as a water source for the Navajo and Hopi tribes in the event it is destroyed.

Speaking further about the uncertainties relating to the aquifer, OSM itself has recently expressed its own uncertainties about the damage to the aquifer caused by pumping for the slurry line. We quote from a section of a letter sent on February 25, 2002 to John Cochran of Peabody Western Coal Company, in response to Mr. Cochran’s question to OSM regarding the reason for OSM’s decision to require a new EIS prior to approving the Permanent Program Permit under consideration for the Black Mesa mine. The letter was written by Peter A. Rutledge, Manager, Indian, Federal & State Program Support Team, Western Regional Coordinating Center, Denver, Colorado. Mr. Rutledge wrote:

[T]he principle reason OSM has decided that a new EIS is required for the significant revision is the continued and increased pumping of the Navajo aquifer to slurry coal and the continued controversy and contention associated with the pumping. There has been considerable new information generated on the issue of pumping of the N-aquifer water for coal slurry purposes since the 1989 EIS that needs to be considered and made available for public scrutiny in the EIS process before even continued pumping for slurry purposes, let alone increased pumping could be approved.

Based on the obvious uncertainty existing on this issue, it is incumbent upon OSM to require long term bonding now.

An additional issue needs to be addressed. That is, Peabody may argue that a bond is not required because it has already paid for the water and has a lease provision allegedly allowing it to use “that amount of water necessary for the mining process.” See Peabody Permit Application Chapter 19, p. 4. However, Peabody’s private right to use the water, if any, does not trump OSM’s responsibility to safeguard the aquifer.

A recent case from the Indiana Supreme Court is instructive. Natural Resources Commission v. Amax Coal Co., 638 N.E.2d 418 (Ind. 1994). In Amax Coal, the Indiana Supreme Court applied a provision of that state’s version of SMCRA that is almost identical to 30 U.S.C. § 1307 and 30 C.F.R. § 816.41(h), which require replacement of groundwater resources that are materially damaged by surface mining. In Amax, two coal strip-mining companies applied for the right to pump groundwater from underneath their lands as part of the mining process. The companies claimed rights to the water based on state common law because the water lay beneath their lands. In both cases the state regulatory authority refused permission to pump the groundwater until the coal companies could affirmatively demonstrate that the

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pumping would not be detrimental to adjacent landowners. Amax, 638 N.E.2d at 426 (“[T]he coal company submitted the required plan to preserve the hydrologic balance with its permit application. However, the NRC believed that the proposed plan was deficient, and conditioned approval of the permit pending further hydrologic studies”).

The Indiana Supreme Court held that the NRC, the state administrative agency with responsibility for issuing permits, had the statutory authority to regulate the groundwater. The Court further held that this did not constitute a “taking” because “[t]he State [could] regulate the use of property without destroying rights in that property.” *Id.* at 429, citing *Village of Euclid, Ohio v. Ambler Realty Co.*, 272 U.S. 365 (1926).

The Amax case is instructive here because Peabody also claims it has rights to use the groundwater. These private rights, however, even assuming they exist, cannot give Peabody the freedom to destroy with impunity a sole source of water relied on for a thousand years for domestic, agricultural, and ceremonial purposes. Moreover, any private rights Peabody may claim cannot supersede the OSM’s public duty to preserve this irreplaceable resource.

B. Bond and Insurance Formal Requirements

Finally, although Chapter Three of Peabody’s permit application does contain documents purporting to demonstrate compliance with bonding and insurance requirements, these documents do not answer all questions. With respect to the liability insurance, we seek to confirm that the insurance is in effect, for the proper amounts, and that there are no unauthorized limitations on liability. 30 C.F.R. 800.60 (“Such policy shall provide protection . . . in an amount adequate to compensate any person injured or property damaged as a result of the surface coal mining . . .”). With respect to the performance bonds, documents associated with the bonds in Chapter Three show dates no more recent than April 21, 1997. We seek to confirm that these bonds meet all requirements including, but not limited to those set forth in the following regulations:

- 800.11: Bonds must be payable to the regulatory authority, and conditioned on faithful performance of all requirements of the Act; bonds shall follow one of the appropriate schemes, such as “entire permit area,” “cumulative,” or “incremental.”
- 800.12: Bond must be in appropriate form, such as surety, collateral, self, etc.
- 800.13: Bonds must cover the appropriate period of liability.
- 800.16: Bonds must show evidence of proper notice mechanisms in the event of the insolvency of the surety.

C. OSM Has Failed to Meet Its Obligations

Under the SMCRA regulations it is the regulatory authority, not the permit applicant, which has the responsibility for setting the amount of the reclamation bond. As the regulatory authority on Indian Lands, 30 C.F.R. § 750.6(a), OSM has the responsibility for determining the amount of the reclamation bond at Kayenta/Black Mesa mine. 30 C.F.R. § 800.14(a)(1). In determining the bond amount, OSM may consider, but may not rely on, the cost

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estimates submitted by Peabody. 30 C.F.R. § 800.14(a)(4); Handbook for Calculation of Reclamation Bond Amounts. OSM must set the bond at an amount sufficient to assure completion of the reclamation plan if the work were to be performed by OSM in the event of Peabody's forfeiture. 30 C.F.R. § 800.14(b). The above requirements are mandatory, and OSM has not met these requirements.

Not only has OSM failed to set the amount of a hydrologic reclamation bond at a reasonable level, OSM has failed to require any bond at all. Contrary to the mandatory requirements of the statute and regulations, OSM has allowed Peabody to operate this surface coalmine for over 15 years with no hydrologic reclamation bond of any kind. This is an unacceptable abdication of OSM's mandatory responsibilities. See *United States v. Monsanto*, 491 U.S. 600, 607 (1989) (by using "shall" in civil forfeiture statute, "Congress could not have chosen stronger words to express its intent that forfeiture be mandatory in cases where the statute applied."); *Association of American Railroads v. Costle*, 562 F.2d 1310, 1312 (D.C. Cir. 1977) ("The word 'shall' is the language of command in a statute"); *West Virginia Highlands Conservancy v. Norton*, 2002 WL 424577, *4 (S.D.W.Va., 2002) ("When a statute or regulation uses the word 'shall,' a mandatory duty is imposed upon the subject of the command").

One of the key policies behind SMCRA's reclamation bond is that it is the mine operator, not the taxpayer or landowner, who shall be required to pay for reclamation. *West Virginia Min. and Reclamation Ass'n v. Babbitt*, 970 F.Supp. 506, 512 (S.D.W.Va.1997) ("[A] bedrock principle of SMCRA is the obligation of the mine operator to bear the costs associated with surface mining, from the permitting of a mining operation through to the conclusion of the reclamation process"). OSM's failure to set any amount for an adequate hydrologic reclamation bond defeats this bedrock SMCRA policy. After Peabody has packed up and banked its profits, the Hopi and Navajo will be the ones who are left to pay the price for the reclamation or loss of the Black Mesa hydrologic system.

Not only has OSM failed in the past to establish an adequate bond, Peabody is asking OSM to make the same mistake again. In its current permit application, Peabody asks OSM to "limit its review to only the materials in the application that are changing as a result of this and the August 10, 2001 submittals." Peabody January 17, 2002 letter, p.1. Further, Peabody argues that OSM "need not review the remaining materials in the application because those materials have already been subject to full regulatory analysis during and after the five year period when the original application was reviewed." See further discussion in Comments submitted by the Lawyer's Committee for Civil Rights Under Law.

If OSM grants Peabody's request that it limit its review to recently submitted materials, OSM will repeat the mistakes of the past with respect to the hydrologic reclamation bond. The regulations state that under circumstances of either changed conditions, increased cost of reclamation, or major permit revision, OSM is required to review and adjust the reclamation bond. 30 C.F.R. §§ 800.15(a) and (d). OSM is not free to ignore "remaining materials in the application because those materials have already been subject to full regulatory analysis." Here, Peabody seeks a major revision through the addition of the J-23 mine area (OSM acknowledged that this is a "major revision" in its February 25, 2002 letter to John Cochran). In addition, Peabody seeks a 32% increase in aquifer pumping for the slurry line.

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This increased pumping constitutes changed conditions and causes increased costs for reclamation. Accordingly, OSM is required under 30 C.F.R. §§ 800.15(a) and (d) to adjust the amount of the bond. OSM must not compound its past failure to establish a hydrologic reclamation bond by repeating the same error in the context of this major permit revision. OSM must review the entire permit application and establish an adequate hydrologic reclamation bond.

D. Conclusion

Peabody has failed to provide any meaningful hydrologic reclamation plan or bond. Furthermore, Peabody has failed to provide evidence that the reclamation bonds it has provided, not related to hydrology, are up to date and in proper form. Correspondingly, OSM has failed to set the bond amounts through independent calculations, and it has failed to adjust the bond for changed circumstances. Most significantly, OSM has failed to require any hydrologic reclamation bond at all throughout the 15-year history of the Black Mesa/Kayenta mines.

The surface and ground waters of Black Mesa are its most valued and valuable resource. They constitute this arid region's only tenuous bridge to life. If at the end of the day these waters do not survive Peabody's strip mining, then SMCRA's fundamental purposes will entirely fail. OSM, an entity whose sole reason for existence is to implement and enforce SMCRA, must meet its obligations and require bonding to protect these waters. With no hydrologic reclamation bond, the Hopi and Navajo will be the ones to pay, long after Peabody is gone. Peabody's surface water impoundments and pumping for the slurry line heavily impact the hydrologic balance on Black Mesa. To the extent OSM allows these activities to carry on at all, OSM must require a hydrologic reclamation bond in an amount sufficient to reclaim or replace these vital waters. The pending permit application must not be approved without such a bond.

V. THE PERMIT APPLICATION SHOULD BE DENIED UNTIL SURFACE WATER IMPOUNDMENT VIOLATIONS AT THE BLACK MESA MINE COMPLEX ARE ABATED

A. Background

Peabody Western Coal Company maintains an extensive system of surface water impoundments at the Black Mesa/Kayenta mine complex. These surface water impoundments are in violation of the regulations promulgated to control their use, and thus should not be allowed to stand. Moreover, the permit application currently pending before OSM should be denied until these violations of the impoundment regulations are abated.

Three agencies are charged with partially overlapping responsibilities with respect to the oversight of surface water impoundments. These include the Office of Surface Mining, ("OSM"), the Army Corps of Engineers ("Corps"), and the Environmental Protection Agency ("EPA"). Peabody currently maintains the impoundments under the authority of all three agencies. Pursuant to the Clean Water Act and its implementing regulations, the EPA and the Corps have granted their approvals of the impoundments at Black Mesa. The EPA granted approval by providing the required certification that the impoundments have met water quality

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standards. Clean Water Act § 401; 33 U.S.C. § 1341. The Corps granted approval by authorizing the impoundments pursuant to one of the Nationwide Permits that are designed to streamline approval for certain categories of activities deemed to have "minimal impacts" on the environment. Clean Water Act § 404; 33 U.S.C. § 1344; 33 C.F.R. § 330.1(b). OSM granted its approval as a secondary consequence of its overall approval of the mine permit. That is because Nationwide Permit 21, the permit applicable to surface mining activities, is only effective if the surface mine in question operates under a permit approved by the applicable regulatory authority, in this case OSM.

Nationwide Permit 21, however, was prematurely granted. That is because OSM improperly approved the overall mine permit for the Kayenta mine, and has failed to enforce the regulations with respect to the pending application at Black Mesa. To the extent OSM granted approval of the mine permit in the past, it did so in violation of its own impoundment regulations. OSM should now deny the application currently before it; at least until the impoundment violations are abated. Thus, although Peabody currently maintains the impoundments under the authority of Nationwide Permit 21, the authorization for these impoundments should be withdrawn.

B. OSM Should Deny the Permit Application Because Peabody's Impoundments Violate the Regulations

Under 30 C.F.R. § 773.15(a), no permit application or application for a significant revision should be approved until the regulatory authority finds in writing that the applicant has complied with all requirements of the Act and the regulatory program. One such requirement of the regulatory program is set forth at 30 C.F.R. § 816.49(b)(5), which provides:

(b) A permanent impoundment of water may be created, if authorized by the regulatory authority in the approved permit based on the following demonstration:

(5) The impoundment will not result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.

Peabody has failed to demonstrate that the permanent impoundments at Black Mesa will not result in diminution of water quality and quantity to adjacent downstream users. Although it is true that Chapter 18 of Peabody's current permit application, the Probable Hydrologic Consequences report, does assert that the impoundments have a negligible effect, this showing is not adequate. Numerous questions remain unanswered. Many of these questions were raised by then-Hopi Tribal Chairman Vernon Masayesva in a 1993 letter to the Army Corps of Engineers. See Attachment H (Letter from Vernon Masayesva to John A. Gill, December 14, 1993). In this letter Mr. Masayesva protested the approval of a Nationwide Permit authorizing the impoundments. A number of the points from this letter are summarized below.

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Well over 100 impoundments exist within the boundaries of the Black Mesa/Kayenta mine complex. These impoundments control the runoff from roughly a 62,000-acre area. They range in size up to 755 acre-feet, and have a cumulative capacity of almost 5,500 acre-feet. The loss of water from evaporation alone is several hundred acre-feet or more per year. The construction, maintenance, and operation of these impoundments cannot be characterized as having a minimal impact on the adjacent down stream water users.

Little case law exists defining exactly what constitutes a "minimal" environmental impact. One recent case, however, gives a point of reference. In *Bragg v. Robertson*, 54 F.Supp.2d 635 (S.D.W.Va.1999), the plaintiffs alleged that it was unlawful for the Army Corps of Engineers to issue Nationwide Permits for the surface mining of valley fills in West Virginia. The parties tentatively settled the matter, reaching an agreement that required the Corps to develop agency policies to minimize the adverse environmental impacts of mountaintop mining operations. The agreement also contained an interim requirement to be in effect while these mining policies were being developed. That interim requirement was as follows: until final environmental policies were established by the Corps as part of the settlement, all mining companies whose operations were expected to have more than minimal effects on the environment would be required to seek the much more heavily scrutinized individual permits, rather than the easy to obtain Nationwide Permits. Most significantly, the agreement stipulated that "if a mining permit will drain a watershed of 250 acres or more," it will be "considered" to have "more than minimal adverse effects" per se. *Id.* at 639.

The *Bragg* case, of course, does not establish a "per se" rule that the drainage of a watershed of 250 acres or more should necessarily be considered to have "more than a minimal adverse impact on the environment." However, when the 250-acre cut-off point contemplated by the parties in *Bragg* is compared with the 62,000-acre surface water runoff area controlled by Peabody's impoundments, the determination that Peabody's impoundments will have a "minimal impact on the environment" seems unsupportable to the point of being irrational. This viewpoint can only be reinforced when one considers the vast quantities of water being impounded by Peabody, the fragility of the desert ecosystems, and the degree to which the Hopi farmers depend on these runoffs to support their twelve-hundred-year-old farming culture.

Furthermore, the surface water, if left to its natural flow, eventually seeps underground and contributes to the recharge of the N-aquifer. The aquifer water in turn percolates to the surface in a variety of springs and washes. Peabody's impoundments interrupt that cycle. They harm the hydrologic balance, cause damage to the fragile desert ecosystems, and negatively impact the farming practices and religious ceremonies of the Hopi Tribe. If nothing else, Peabody's impoundments have already cost this arid region thousands of acre-feet of water through evaporation alone.

When reviewing agency decisions for error, courts apply the "arbitrary and capricious" standard. The U.S. Supreme Court has established that an agency's ruling would be arbitrary and capricious if the agency "entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut.*, 463 U.S. 29, 43 (1983). Here, for the

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reasons discussed above, the Army Corps of Engineers' decision to allow Peabody to maintain these impoundments under a Nationwide Permit is "so implausible that it cannot be ascribed to a difference in view." Furthermore, it is an example of a decision that "runs counter to the evidence before the agency." Accordingly, this decision by the Corps is an example of "arbitrary and capricious" agency decision-making.

In connection with the pending permit application OSM is also being asked by Peabody to make a decision that similarly "runs counter to the evidence before the agency." Under 30 C.F.R. § 816.49(b)(5), permanent impoundments cannot stand if they will "result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners." Here, the footprint of Peabody's impoundment program is so massive, and the region of the country in which the program takes place is so arid, that it defies reason to argue that these impoundments will not impact water quality and quantity for downstream water users. Accordingly, OSM must follow its own regulations and deny Peabody's mining permit unless and until Peabody can affirmatively demonstrate that these impoundments will not have a negative impact on the desert ecosystems and the downstream Hopi farmers.

A final point should be mentioned. Peabody may argue that OSM should not be allowed to withdraw approval for the impoundments now that Peabody has relied on a 15-year track record of approval. This argument, however, is contrary to law:

[M]ining companies' expectations regarding the permitting process based on the [regulatory agency's] previous behavior are not rights established by contract, statute or regulation. Instead, they are simply expectations and assumptions that cannot bind and prevent the [regulatory agency] from exercising its administrative discretion and duties. It is rare that the United States is estopped from taking positions different from those mistakenly taken by its agents on prior occasions. See, e.g., *United States v. Vanhorn*, 20 F.3d 104, 112 n. 19 (4th Cir.1994) ("The Government is simply not bound by the negligent, unauthorized acts of its agents. Federal law is clear that estoppel is rarely, if ever, a valid defense against the Government absent proof of some affirmative misconduct by a Government agent").

Bragg v. Robertson, 54 F.Supp.2d at 665.

C. Conclusion

The surface water impoundments at Black Mesa are in violation of OSM's own regulations. Peabody has failed to demonstrate that the impoundments will not result in diminution of water quality and quantity for adjacent landowners. Thus, the impoundments should not be allowed to stand. Moreover, notwithstanding previous regulatory approval, the permit application currently pending before OSM should be denied until these violations of the impoundment regulations are abated.

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VI. PROCEDURAL AND ENVIRONMENTAL JUSTICE ISSUES

A. Permit Revisions Should Be Processed as New Permit

The Part 750 regulations outline requirements for Surface Coal Mining and Reclamation Operations on Indian Lands. 30 C.F.R. Part 750. According to these regulations, applications for significant revisions shall be processed as new applications in accordance with Parts 773 and 775. 30 C.F.R. § 750.12(c)(3)(C). Under the regulations, in determining what is a significant revision, OSM shall consider, among other things, the environmental effects, the public interest in the operation, or likely interest in the proposed revision, and possible adverse impacts from the proposed revision on cultural resources. 30 C.F.R. § 750.12(c)(3)(B).

The environmental effects of the permit revision request are significant and are outlined in our comments and objections submitted by the Natural Resources Defense Council ("NRDC"). There are also significant adverse impacts on cultural resources discussed in our comments and objections submitted by the Sierra Club. In fact, the full environmental and cultural impacts of the ongoing and proposed mining activities will not be known until after the National Environmental Policy Act ("NEPA") and Cumulative Hydrologic Impact Assessment ("CHIA") processes are complete. Moreover, according to NRDC as of April 25th, OSM has received more than 5,400 negative public comments on Peabody's permit application. We agree with OSM's conclusion in its letter of March 6, 2002 to Vernon Masayesva that Peabody's requested permit revision is significant under the regulations and should be treated as a new permit. Letter to Vernon Masayesva, Executive Director, Black Mesa Trust, from Brent Walquist, Regional Director, Office of Surface Mining Reclamation and Enforcement, dated March 6, 2002, at 1 ("OSM March 6, 2002 letter").

B. OSM Should Review the Entire Life-of-the-Mine Permit Application, Not Just the J-23 Revision Request

In its January 2002 permit application, Peabody requests that OSM "limit its review to only the materials in the application that are changing as a result of this and the August 10, 2001 submittals." Peabody January 17, 2002 letter, at 1. Further, Peabody argues that "OSMRE need not review the remaining materials in the application because those materials have already been subject to full regulatory analysis during and after the five year period when the original application was reviewed." *Id.*, at 1. However, because the revision in Peabody's application is significant as defined in 30 C.F.R. § 750.12(c)(3)(ii)(C), OSM must process it as a new permit.

The regulations make a distinction between how "significant revisions" and "other revisions" should be treated. While significant revisions will be processed as if they are new applications, "[o]ther revisions shall be reviewed to determine if the findings which were made in issuing the original permit are still valid." 30 C.F.R. § 750.12(c)(3)(ii)(C). Peabody has asked OSM to look only at the increment proposed in the permit revision request (*i.e.*, "limit its review to only the materials in the application that are changing as a result of this and the August 10, 2001 submittals") and not review existing findings and information (*i.e.*, "not review the remaining materials in the application"). This requested course of action does not meet the lesser

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standard of review allowed for "other revisions," much less a "significant revision" as is proposed by Peabody in its application. Even that lesser level of review for "other revisions" would require OSM to conduct a review of the information and purported findings of the entire initial permit application.

Under the regulations, processing a request as a new permit establishes an even higher standard of OSM review for all aspects of the permit than is required for other non-significant revisions. To be processed as a new permit means not only that proper public participation and environmental assessments (*e.g.*, Environmental Impact Statement ("EIS"), CHIA) be conducted, but that those processes cover more than just reviewing or taking comment on changes to "findings which were made in issuing the original permit." *Id.* That higher standard of review should entail a review of the life-of-the-mine permit application including, but not limited to the current application revision request.

In addition to the requirements of the regulations, there are several other reasons why OSM should not limit its review to the January 2002 permit revision request. First, the public has had no opportunity to comment on the proposed activities in more than five years. Meanwhile, Peabody has been updating the Black Mesa Mine permanent program permit application pending approval. Permit Application, Chapter 1, at 2 (Revised 01/15/02). Also, as OSM stated in its letter to Peabody dated February 25, 2002, "[T]here has been considerable new information generated on the issue of pumping of the N-aquifer water for coal slurry purposes since the 1989 EIS that needs to be considered and made available for public scrutiny in the EIS process before even continued pumping for slurry purposes, let alone increased pumping could be approved." Letter to John Cochran, Peabody Western Coal Company from Peter A. Rutledge, Chief Program Support Division, Office of Surface Mining, dated February 25, 2002. ("OSM February 25, 2002 letter"). As is described in our comments below and in our comments submitted under separate cover by the Sierra Club and NRDC there is significant new information on issues such as cultural resources, endangered species, bonding, ownership, and surface water impoundments, as well as the impacts of groundwater pumping. This new information, along with existing information in the life-of-the-mine application should be reviewed and analyzed by OSM, because it will have a significant impact on OSM's final findings.

Another reason OSM should not limit its review to the January 17, 2002 revision request is that no life-of-the-mine permit was ever issued. Peabody acknowledges that "OSM has not issued the permanent program permit for the portion of the proposed permit area covering the Black Mesa Mine pending resolution of the water use issues associated with operation of the Black Mesa Mine." Permit Application, Chapter 1, at 2 (Revised 01/15/02). Therefore, what Peabody is currently proposing is not even a permit modification, but in fact a request to modify its permit application. OSM should review the whole life-of-the-mine permit application in light of new information that has become available since the application was first submitted, as well as in light of the age of the existing information submitted in support of the original application.

Clearly, the permit revision request is significant and should be processed as if it is a new application under the regulations. This means more than just OSM reviewing its old

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findings in light of the proposed revision to the application. OSM should review new information and allow public comment on information in the existing permit application, the revised permit application, and new information that has come to light since the initial original application was submitted.

C. Public Notice Fails to Meet Regulatory Requirements

The public notices, one of which was published in the February 13, 2002 edition of the Navajo-Hopi Observer, do not clearly show or provide a description or map "sufficient to enable local residents to readily identify the proposed permit area." 30 C.F.R. § 773.6(a)(ii). As we pointed out in our letter of February 17, 2002, the description provided in the notice not only fails to specifically identify the location of the proposed amendment to the permit application (the J-23 area), but also fails to set forth a description of the overall mining area that meets the regulatory requirements. Letter to Brent Walquist, Regional Director, Office of Surface Mining, from Vernon Masayesva, Executive Director, Black Mesa Trust, dated February 17, 2002 ("Black Mesa February 17, 2002 letter"), at 2

The notices contain obscure and highly technical references to the "Gila and Salt River Basin Meridian," "protracted boundaries," and what we believe may be mapping coordinates. They also provide locational information such as "Townships 35 through 36 North, Ranges 18 through 19 East." Those landmarks are meaningless to local residents because the Hopi and the Navajo do not identify their villages in terms of Township numbers. Additionally, it is unclear what Ranges 18 and 19 refer to, (perhaps they refer to mountains, but perhaps not) therefore as aids to local residents identifying a location they are not helpful. Coordinates such as "T35N, R18E Sections 3-5, 8-11, 13-17, and 20-36" are equally meaningless. Providing references to U.S. Geological Survey 7.5 minute quadrangle maps is likewise not helpful because few if any local residents own copies of, have access to, or have intimate familiarity with those maps.

In these ways, the notice requires local citizens to possess particular maps and documents and be expert cartographers in order to translate the narrative description into a real-world location. Even if a local resident could decipher the description, this translation would not yield an understanding of the "precise boundaries" of the proposed mining area. While referring to sections of technical maps, the mining area is referred to only as located "near" certain boundaries and "within" the "protracted boundaries" of certain numbered townships. This description lacks sufficient specificity to meet the applicable regulatory standard.

In addition, as we stated in our Black Mesa February 17, 2002 letter, the notice does not adequately reveal the nature of the permitting action contemplated. The notice makes it appear as if OSM is merely considering certain *updates* to aspects of Peabody's application, whereas what Peabody has also requested in its letter of January 17, 2002, is a re-activation and consideration of its application for a life-of-the-mine permit for the entire area covered by the Black Mesa mine. As a consequence, the notice, as drafted, fundamentally fails to serve its regulatory purpose: which is to clearly inform people about the scope and nature of the proposed action.

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D. Public Participation Process Fails to Follow Presidential Directive and DOI Guidance on Translation

On August 11, 2000, to improve access to Federally conducted programs and activities for persons who, as a result of national origin, are limited in their English proficiency ("LEP"), the President issued Executive Order 13166 "Improving Access to Services for Persons With Limited English Proficiency." Under Executive Order 13166. 65 Fed. Reg. 50121 (Aug. 16, 2000). Under the LEP Executive Order, Federal departments and agencies were to take steps to ensure that persons with limited English proficiency can meaningfully access the agency's (*i.e.*, Federally conducted) programs and activities. This included providing translation services so LEP persons could effectively be informed of or to participate in the programs.

In February 2001, the Department of the Interior ("DOI") issued its own LEP guidance and in it specifically identified water resource programs, environmental protection programs, and most importantly, surface mining and reclamation programs as examples of DOI Federally conducted programs. U.S. Department of the Interior, Departmental Office for Equal Opportunity, "Improving Access to Programs and Activities for Persons with Limited English Proficiency," February 2001 ("DOI LEP Guidance"), at 4. DOI's LEP Guidance further states that "the lack of language assistance capability among agency employees has especially adverse consequences among rural Alaskan Native communities and especially older Native Americans, where in certain instances, they only speak and understand their own native languages." *Id.* at 3. This is true in the current situation. Many of the Hopi and Navajo who are and will be impacted by the existing and proposed mining operations and N-Aquifer depletion have limited English proficiency.

The DOI LEP Guidance sets forth "the actions that will be taken by all bureaus and offices to ensure that their programs and activities are nondiscriminatory towards and accessible to people who cannot write, read, or understand the English language." *Id.* at 6. As a Departmental Goal, all bureaus and offices "shall provide timely, competent, and quality language assistance services to LEP persons." *Id.* at 6. In OSM's case vital documents that should be translated include the public comment notices and other critical permitting documents, including those developed as a part of the National Environmental Policy Act ("NEPA") and CHIA processes, as well as the permit application approval process. Without providing these vital documents in native languages, those most impacted by OSM's actions are not able to meaningfully access the Black Mesa Mine permitting process.

Under the DOI LEP Guidance, each "bureau and office shall proactively inform LEP customers and local grassroots organizations who represent LEP persons of the availability of language assistance services through both oral and written communications, in his or her primary language. All language assistance services provided by bureaus and offices to LEP persons must be free of charge." *Id.* at 9. Rather than provide the translation requested or even a commitment to provide future translation, OSM in its March 6, 2002 letter to Vernon Masayesva, provides two explanations as to why notices were not published in Hopi. OSM March 6, 2002 letter, at 2. First, OSM states that notices were published in three major newspapers serving the Hopi Tribe and the Navajo Nation and that all three newspapers publish in English. While this statement is true -- all three papers do publish in English -- it does not

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explain why the notices were not translated into Hopi. The Hopi Tutuveni, one of the papers that published the notice, publishes items in Hopi.

The more appalling and blatantly inaccurate reason given by OSM for failing to translate the hearing notice and other vital documents into Hopi is that "Hopi is not yet a written language." *Id.* at 2. Early missionaries were writing Hopi in the 1850s. Examples of recent literature published in Hopi, include Herschel Hopitutuwutsi Talashoema's "Hopi Tales: A Bilingual Collection of Hopi Indian Stories," (University of Arizona Press, 1983), and Michael Lomatuway'ma's "Children of Cottonwood: Piety and Ceremonialism in Hopi Indian Puppetry," (University of Nebraska Press, 1987), and "The Bedbugs' Night Dance and Other Hopi Sexual Tales," (University of Nebraska Press, 1995). There are several Hopi dictionaries in publication. One recent dictionary, the "Hopi Dictionary - *Hopiwa Lavayutveni: A Hopi-English Dictionary of the Third Mesa Dialect*," was compiled by the Hopi Dictionary Project and published in 1997 by the University of Arizona Press. It contains approximately 30,000 entries.

The Department of the Interior's mining offices have been working with the Hopi Tribe on Black Mesa mining issues for more than 40 years. It is inexplicable that after all this time, the Department and OSM still do not know that, despite the U.S. Government's attempts to extirpate the Hopi language and culture through implementation of its assimilation policies, Hopi is a written language.

E. Public Participation Process Fails to Follow Presidential Directive, DOI Guidance, and OSM Guidance on Environmental Justice

On February 11, 1994, the President issued Executive Order 12898 "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations" ("EJ Executive Order"), 59 Fed. Reg. 7629 (Feb.16, 1994). As the Presidential Memorandum that accompanied the EJ Executive Order stated, the Executive Order was "designed to focus Federal attention on the environmental and human health conditions in minority and low-income communities with the goal of achieving environmental justice." Memorandum for the Heads of All Departments And Agencies, Subject: Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994, at 1 ("Presidential Memo on EJ"). The EJ Executive Order was also intended to "provide minority communities and low-income communities access to public information on, and an opportunity for public. *Id.* at 1.

Section 5-5 of the EJ Executive Order states that "each Federal agency may, whenever practicable and appropriate, translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations" EJ Executive Order, § 5-5(b). Moreover it states that "each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public." *Id.* § 5-5(c).

As stated earlier, the written notice published in the newspapers was not understandable nor was it translated into Hopi or Navajo, and therefore, was not readily accessible to many Hopi and Navajo with limited English proficiency.

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1. Access to Information Does Not Comply with DOI and OSM EJ Guidance

In 1994, the Secretary of Interior issued an environmental justice policy statement directing DOI action. DOI issued its own guidance and strategic plan to implement the EJ Executive Order. The first Goal in DOI's Environmental Justice Strategic Plan is that "the Department will involve minority and low-income communities as we make environmental decision and assure public access to our environmental information." U.S. Department of the Interior, "Strategic Plan Environmental Justice," April 11, 1995 ("DOI EJ Strategic Plan"), at 2. The DOI EJ Strategic Plan also states in the section that discusses what OSM is doing to implement DOI EJ Goal 1 on public participation that "the meaningful public participation of low-income, minority community members and members of the Native American community has been and continues to be high priority in the Agency's dealing with the States, Tribes, citizens and the industry." *Id.*, at 4. This OSM section on public participation goes on to say:

Further, we ensure that members of the affected communities have access to the necessary information that affords them the opportunity to provide meaningful comments. Providing this information also gives the members of the affected community the background they need to determine what effects, if any, a proposed action will have on their community.

Id., at 4.

The Office of Surface Mining Reclamation and Enforcement's Western Regional Coordinating Center ("WRCC") issued two guidance documents on environmental justice. The first is the "Western Regional Coordinating Center Environmental Justice Guidelines." Western Regional Coordinating Center Environmental Justice Guidelines ("WRCC EJ Guidelines"). The purpose of this document was to provide "general guidance for complying with the Environmental Justice (EJ) Executive Order as it relates to the Surface Mining Control and Reclamation Act (SMCRA) in the OSM Western Region." *Id.*, at 1. They state that "environmental justice means ensuring, to the extent provided by Federal law, that eligible populations have equal access to information, a fair opportunity to public participation, and equal protection from adverse human health or physical effects." *Id.*, at 1-2. The WRCC EJ Guidelines further elaborate on the public participation aspect by stating that Federal agencies are among other things responsible for providing "a fair opportunity to comment on Federal actions." *Id.*, at 1.

The entire life-of-the-mine permit application fills several book shelves. Even the incomplete permit revision application materials are over a thousand pages long. While access to at least some application-related documents is available at the Forest Lake Chapter House and the Hopi Tribe's Office of Mining and Mineral Resources, the simple provision of documents at these locations is not sufficient to provide meaningful access, as contemplated by the EJ Executive Order and DOI and OSM environmental justice guidance documents. However, it takes many interested persons two or three hours to drive to these locations and reading the voluminous document at one sitting impossible.

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Interested parties were told by the Hopi Mining Office in order to obtain a copy of the permit application or revision application, that they must purchase and bring their own copier paper and pay for the use of copy facilities. Given the quantity of documents and their combined length, the cost to obtain one set of complete documents would surely reach thousands of dollars, making acquisition unrealistic under the current approach for the low-income community affected by the proposed mining decision. Finally, as noted above, simple descriptions, translations, and other necessary aids have not been provided even though the materials are highly technical in nature and only published in English.

Also, interested parties were not provided access to updated information that would give "the members of the affected community the background they need to determine what effects, if any, a proposed action will have on their community." OSM acknowledges a need to update the EIS and the CHIA, and in our comments submitted by the Sierra Club, it has been made clear that a full analysis of impacts on cultural resources is also absent. Nonetheless, by setting a deadline of April 29, 2002 for public comment on the permit application, OSM is forcing the affected community and interested parties to provide comment without access to that critical information they need to assess the devastating environmental and cultural impacts on their community.

2. Notice to Affected Community Does Not Comply with EJ Executive Order or DO EJ Guidance

In September 1998, the Western Regional Coordinating Center issued another environmental justice guidance document geared toward public participation in the Indian Lands Program. Office of Surface Mining Western Regional Coordinating Center, "Public Participation and Involvement, Environmental Justice Activities in the Indian Lands Program," September 1998 ("WRCC Public Participation and EJ in Indian Lands Guidance"). That guidance document explains that Section 5-5(c) of the EJ Executive Order requires that "Each Federal agency shall work to ensure that public documents, notices, and hearing relating to human health or the human environment are concise, understandable, and readily accessible to the public." *Id.*, at 1.

The WRCC Public Participation and EJ in Indian Lands Guidance elaborates on what activities are encompassed in WRCC's overall public participation and involvement program "[i]n order to ensure consistent implementation of Section 5-5(c) of the Order in the Indian lands program." *Id.*, at 3. It further states that for controversial or activities that have a high degree of public interest, OSM will work in close consultation with "recognized groups to provide broad notification of the proposed activity." *Id.*, at 3. OSM has made no attempt to work or consult with the Black Mesa Trust on this matter. In fact, when Black Mesa Trust made requests in its for translations to better inform the public, those requests were not responded to by OSM in its March 6, 2002, reply letter. Further, we are unaware of any attempts to work with any other recognized groups to provide broad notification. Any information that has become more widely available to the public has been because of requests initiated by the Black Mesa Trust, not the activities of OSM.

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OSM's attempts at ensuring public participation since January 2002 in the Black Mesa Mine life-of-the-mine permit application and application revision request from Peabody, as described above, have not complied with the goals of the EJ Executive Order, the goals of the Department of the Interior, or either of the two OSM environmental justice guidance documents. The public notice has failed in its most basic mission – to put the public – in particular local residents – on notice of what mining activities are proposed by Peabody and where they would occur. As described above, the published notices failed to provide “a fair opportunity to comment on Federal actions” and were not concise, understandable, and readily accessible to the public. Further, they were not translated into languages other than English.

F. Currently Contemplated Permitting Process Fails to Allow Due Process

As discussed above, the interested public, particularly the non-English speaking members of the Hopi Tribe and Navajo Nation were not provided adequate notice as to the activities proposed by Peabody. The notice published in newspapers was incomprehensible in English and was not translated into Hopi or Navajo. Also, as discussed above, meaningful access to the permit documents was denied because within the time frame proposed by OSM, it is not realistic for interested parties like the Black Mesa Trust, other non-profits, and concerned citizens to read the information at the repositories due to the sheer volume of materials and the length many interested persons would have to drive to view the documents. Further, the cost of copying documents is both prohibitive for low-income citizens, if possible, the task of personally copying the documents would be incredibly time consuming.

Moreover, there was not enough time for citizens to prepare detailed and meaningful comments before the April 29, 2002 deadline. In fact, Rick Holbrook of OSM said in a conversation on Tuesday, March 5, 2002 with Andrea Jaussi of the Glen Canyon Institute that if the public had the whole permit application sitting in front of them, they would not have time to read it much less analyze it in time to make meaningful comments. That is an accurate and damning statement.

While the Black Mesa Trust was fortunate to have at its disposal several other non-profits and law firms who were able to devote their time and expertise pro bono to this effort, other interested individuals and organizations were not so fortunate. Even so, there was not enough time for the coalition of commentators we represent to cover all issues in the depth that they deserve due to the importance of OSM's decision.

Even if there were an adequate amount of time given to the public to provide comment, as discussed above, there is not enough information to provide meaningful comments. Critical environmental documents are woefully out of date. OSM itself has acknowledged the need to update them. The available environmental assessments (*e.g.*, 1989 CHIA, 1990 EIS) do not take into account the impacts of the proposed revisions. Nor do they take into account new information that has come to light in the last decade, particularly with regard to the impacts on the N-Aquifer. Without that updated information, it is impossible to meaningfully comment on the permit application.

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Moreover, our requested informal conference and tour of the Black Mesa Mine has yet to occur. We are commenting now without the opportunity to hear OSM's responses to comments and concerns we and others will raise at the informal conference. Also, we are submitting comments without having the benefit of the information gathered during tour of Black Mesa Mine we requested pursuant to 773.6(c)(2)(iii) in our letter of March 29, 2002. Letter to Jerry Gavette, Office of Surface Mining Reclamation and Enforcement, from Mary O'Lone, Lawyers' Committee for Civil Rights Under Law, *et al.*, dated March 29, 2002.

1. Request for Oral Translations

The Executive Order on EJ directs agencies to provide oral translations EJ Executive Order §5-5(b). Moreover, DOI and OSM EJ and LEP Guidance also state that oral translations will be provided at hearings and other important public meetings. The DOI LEP Guidance states that "[e]ach bureau and office shall have an established policy and procedure for providing timely, competent, and quality language assistance services to LEP persons in both face-to-face and telephone encounters." DOI LEP Guidance, Section VI. D. at 8. It further points out that "[t]he essential exchange of information is especially difficult when the two parties involved speak different languages and it is compounded even further when an unqualified third person attempts to serve as an interpreter. . . . An untrained "interpreter" is often unable to understand program related concepts or official terminology he or she is being called upon to interpret or translate." *Id.*, at 3-4.

The OSM section on public participation in the DOI EJ Strategic Plan states that OSM, "[in] an effort to ensure that all members of affected communities have the opportunity to convey their ideas and concerns to the agency on decisions that affect their community, we have established proactive public participation procedures to: ensure the attendance of interpreters at all public hearings for non-English speaking participants." DOI EJ Strategic Plan, at 4. OSM guidance states that for proposed OSM activities on Indian Lands, WRCC will provide translators "to facilitate communications with non-English speaking participants." WRCC Public Participation and EJ in Indian Lands Guidance, at 3.

The Hopi language has always been an integral and vital part of Hopi culture. It is the wellspring of Hopi ceremonial life; it expresses kinship and clan relationships; it holds the Hopi people's history. It is the foundation of creative expression and cultural continuity that stretches back at least one thousand years. The U.S. Bureau of the Census, in "Characteristics of American Indians by Tribe and Language" states that in 1990 there were 5,264 persons over 5 years of age who spoke the Hopi language at home. If the number of people speaking Hopi at home remained constant, by 2000 nearly one-third of those Hopi speakers would be 65 years and older.

Because so many Hopi and Navajo, particularly elders, are limited English proficient, we specifically request that both Hopi and Navajo translation be provided for all radio notices, and that translation by qualified translators be provided at all public hearings, meetings, informal conferences, and other public fora related to the Black Mesa Mine and Peabody's permit applications.

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2. Request for Informational Public Meetings and Training

In the Outreach section of its public participation guidance, OSM states that "For OSM activities on Indian lands, WRCC:

Promotes informational public meetings to educate local populations and give them a greater opportunity to voice concerns about mining and reclamation activities in their area.

Promotes informal training opportunities for local populations on administrative, technical, and environmental issues related to mining and reclamation activities in the area.

Promotes the development of native-language educational materials on mining and reclamation activities."

Id., at 4. We are unaware of any OSM activities in the past four years related to the Black Mesa Mine designed to comply with this section of the guidance.

There have been no informational meetings designed to give local populations a greater opportunity to voice concerns about the Black Mesa mining activities. In fact, the informal conference, granted at the request of Black Mesa Trust, not the instigation of OSM, is the only such opportunity we are aware of since the issuance of the WRCC Public Participation and EJ in Indian Lands Guidance where the local population will be able to voice concerns about mining and reclamation activities in their area. We also request that OSM comply with its guidance and provide informal training opportunities and develop native language educational materials.

It has been impossible for Black Mesa Trust to get information that is suitable for dissemination to the public. Nothing suitable for the general public has been disseminated by OSM related to the Black Mesa Mine permit issues. Information that is available is highly detailed and technical in nature. As described earlier, it was even difficult for the Black Mesa Trust and other interested parties to obtain copies of the permit revision application. Thus, we request that as the permitting process progresses, OSM develop documents that are easy to understand, provide the necessary information for the affected community to assess the impacts proposed activities will have on their community, and provide written and oral translations of important information.

VII. CONCLUSION

The public comment process should never have been initiated because the permit application was not complete under the regulations. In its permit revision application, Peabody did not submit basic required information, much less up-to-date information on ownership, violations, bonding, impoundments, and other subjects discussed above. As the regulations state and as we have described in detail above, this information is a prerequisite to requesting public comment. Therefore, we object to any approval of the permit request as the application is incomplete.

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Moreover, we object to the starting, much less ending, of the public comment process on the permit application until the application is complete as required by the regulations.

We agree with OSM that the permit revision request is significant and should be processed as if it is a new application under the regulations. Therefore, OSM must do more than just review its old findings in light of the proposed revision to the application. As stated earlier, OSM should review new information and allow public comment on information in the existing permit application, the revised permit application, and new information that has come to light since the initial original application was submitted.

We object to the issuance of the permit on a number of grounds. First, the public notice published in newspapers fails to meet regulatory requirements. Second, the public participation process fails to follow direction in a Presidential directive (*i.e.*, LEP Executive Order) and DOI Guidance on translations. Third, the public participation process fails to follow direction in a Presidential directive (*i.e.*, EJ Executive Order) and DOI and OSM environmental justice guidance. Fourth, the public participation process thus far has failed to provide the affected community and interested parties fundamental due process. All of the deficiencies described above have contributed to a public participation process that has severely handicapped the people most directly affected by the ongoing and proposed mining activities. The OSM public participation process to date has made it virtually impossible for the public to meaningfully participate in the public comment process for the life-of-the-mine request and permit application revision. We request that the public comment period not close until all relevant and necessary information is available to the public in a way that is easily understandable and readily accessible.